

October 1957

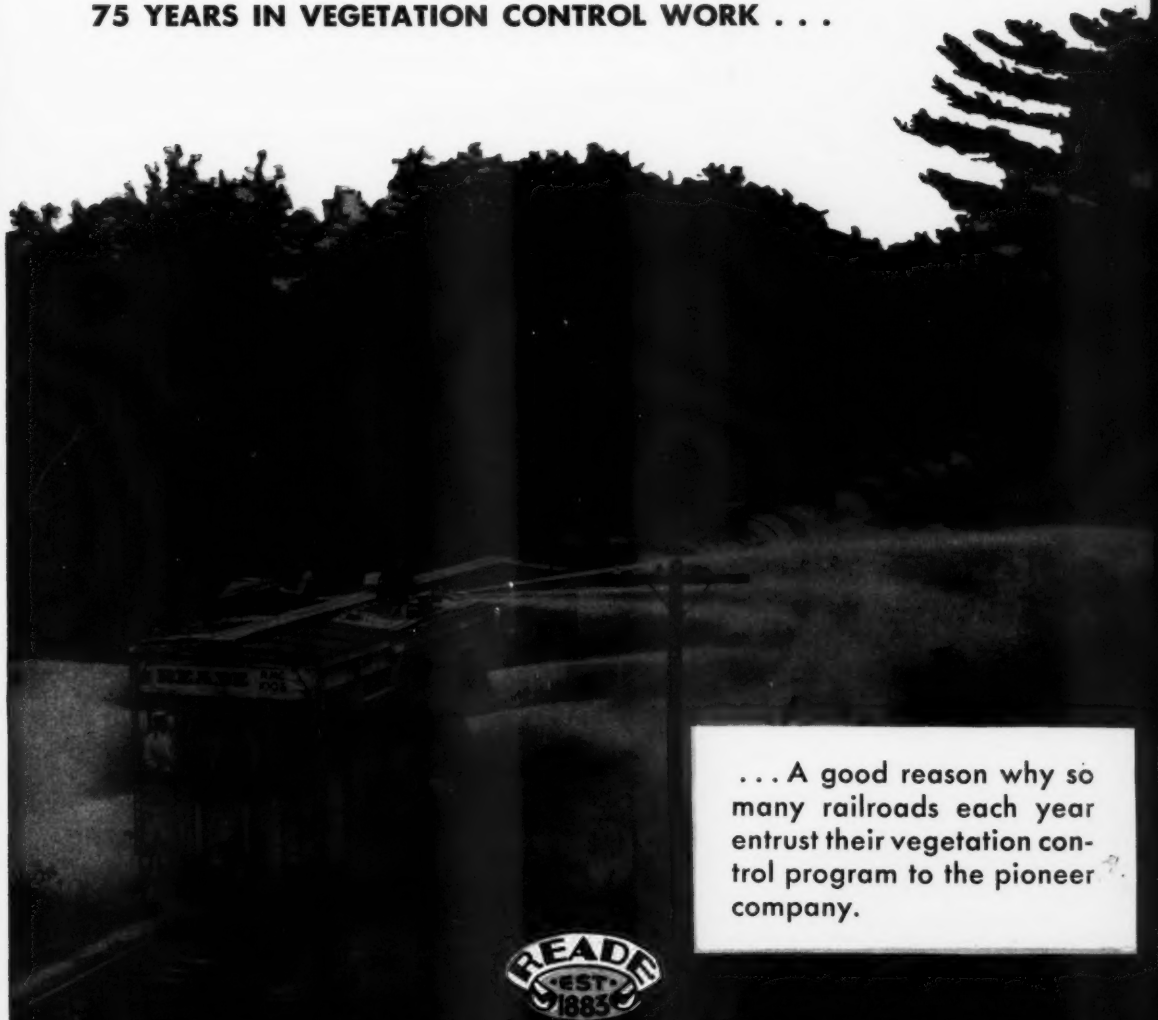
RAILWAY

TRACK *and* STRUCTURES

A Simmons Periodicals Company PUBLICATION

EXPERIENCE—THE GREAT TEACHER

75 YEARS IN VEGETATION CONTROL WORK . . .



... A good reason why so many railroads each year entrust their vegetation control program to the pioneer company.



READE MANUFACTURING COMPANY, INC.

JERSEY CITY 2, N. J.

WORKS: JERSEY CITY • CHICAGO • KANSAS CITY • MINNEAPOLIS

BIRMINGHAM • STOCKTON

Issues:

Print for
mechanization

ing track
the "wire"

cleaning
ing canyon

ere coverage
the convention

pressors
on-track

ents—
p. 35

Try...

**Compare these features
of the
Kershaw Jack-All
with other machines:**

- ★ Tried and proven by four years actual service on railroads.
- ★ No spotting problems. You spot for the jack and the tamping feet automatically are pre-set to tamp adjacent ties.
- ★ Tamps two ties at the same time.
- ★ The Kershaw Jack-All is equipped with a dial indicator-type or pendulum cross-level sighting device.
- ★ Dogs automatically compensate for varying rail heights and the Kershaw Jack-All is on the track at all times.
- ★ One man operated. Self-propelled.

**Now...more
than ever...**

**Recognize This Symbol
of Leadership...**



The Kershaw Jack-All

Before You Buy!

Try before you buy . . . Why invest thousands of dollars in a trackwork machine before you KNOW that it will do the job your operations demand?

Kershaw Manufacturing Company will be happy to arrange a test demonstration of the Kershaw Jack-All, or any Kershaw machine, on your railroad, operating under your conditions. There's no obligation. Then you will know that the machine can do the job you want done before you buy it.





Rugged steel body contains fuel and combustion chambers, self-closing filler cap keeps out dirt and moisture, sliding cover regulates size and height of flame. Flanges prevent scorching of ties, shield flame from wind.

When winter comes, use Winter Kings

The Winter King switch heater is a compact little unit designed to fit easily between the ties and under the rails. Kerosene-burning, it furnishes a friendly orange flame which melts the snow as it falls. The 1½ gal fuel chamber is sufficient for from 9 to 15 hours of operation, depending on the easily-adjusted size of the flame.

Fuel can be added while the Winter King is in operation, and one man can care for as many as 100 units, if they are not too widely scattered. Completely self-contained, the Winter King can be easily moved to any location, and requires no look-

ing-after, other than an occasional refilling with fuel.

Now is the time to be sure you have plenty of Winter Kings ready for the first fall of snow. Their low first cost is hard to beat, and their dependable operation is a prime reason for their growing popularity. A Bethlehem representative will be glad to discuss the Winter King switch heater in detail. You can reach him through any Bethlehem sales office.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation.
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

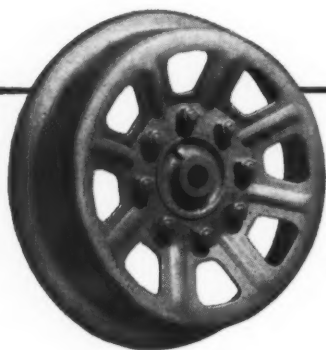


Published monthly by Simmons-Boardman Publishing Corporation, Newark, New Jersey, with editorial and executive offices at 79 West Monroe Street, Chicago 3, Illinois; 30 Church Street, New York 7, New York. Subscription prices: to railroad employees only in the United States and Possessions, and Canada, one year \$2.00. Re-entry of second class mail privileges authorized at Newark, N. J. Volume 53, No. 10.



Standardize on Longer Life...

FAIRBANKS-MORSE Steel Wheels



**Conform Strictly
to
A. R. E. A. Standards**

When you need replacement wheels in 20", 16" or 14" sizes, standardize on F-M quality for longer life.

Every step, from sheet steel purchase to finished wheel in stock, is under Fairbanks-Morse inspection and control. Every wheel is cold formed in our own plant, on our own presses using our own modern dies... is machined and finished to a design of simplicity and strength. Extra thickness and hardness are provided at the areas of greatest wear.

This constant control of quality is your assurance that F-M demountable wheels are the sturdiest track car wheels on the rails today. Fairbanks, Morse & Co., Dept. RTS-10, Chicago 5, Illinois.



FAIRBANKS-MORSE

a name worth remembering when you want the BEST

DIESEL LOCOMOTIVES & ENGINES • MOTOR CARS & RAILROAD EQUIPMENT • ELECTRIC MOTORS • GENERATORS • PUMPS • SCALES • WATER SERVICE EQUIPMENT • HAND LAMPS



ONE DOSAGE of
DRY *Nalco* **H-174**
for ALL-YEAR WEED CONTROL

Low dosage — usually a small fraction of that of other "apply dry" formulations — is a big advantage you get with H-174. And it's easily explained: Nalco H-174 has an unusually high concentration of powerful killing ingredient. *You get much more killing power with much less chemical to transport and apply!*

Nalco H-174 is effective whenever you apply it, but you can get full advantage from this powerful herbicide by spreading a single dosage about 2 weeks before weeds begin to emerge. H-174 will keep them down all year long, eliminating unsightly and inflammable weed debris, preventing re-growth and mid-season seeding.

Spreading dry, granular Nalco H-174 is a fast, simple operation. No mixing, spraying, or dilution . . . ready to use as it comes from bag or convenient shaker box . . . distribute by hand or with mechanical spreaders . . . For better weed control, plan on using Nalco H-174!

H-174 is one of a complete line of Nalco weed control chemicals, both dry and liquid, in wide use by railroads and industries throughout the world.



NATIONAL ALUMINATE CORPORATION
SPRAY SERVICES DEPARTMENT

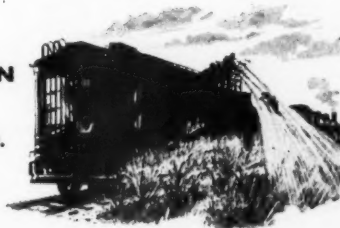
4196 West 66th Place
 Chicago 38, Illinois

Box 5444
 Huntington, W. Va.

CANADA: Alchem Limited, Burlington, Ontario
 ITALY: Nalco Italiana, S.p.A.
 SPAIN: Nalco Espanola, S.A.
 WEST GERMANY: Deutsche Nalco-Chemie GmbH

Nalco®

PRODUCTS . . . SERVING INDUSTRY THROUGH PRACTICAL APPLIED SCIENCE



One of the 160 Uses of CONCRETE on Railroads

NO. 39 OF A SERIES

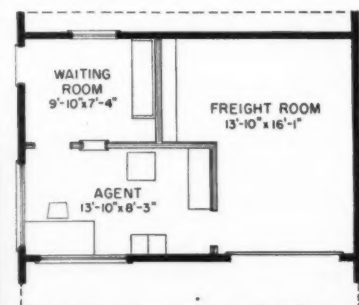
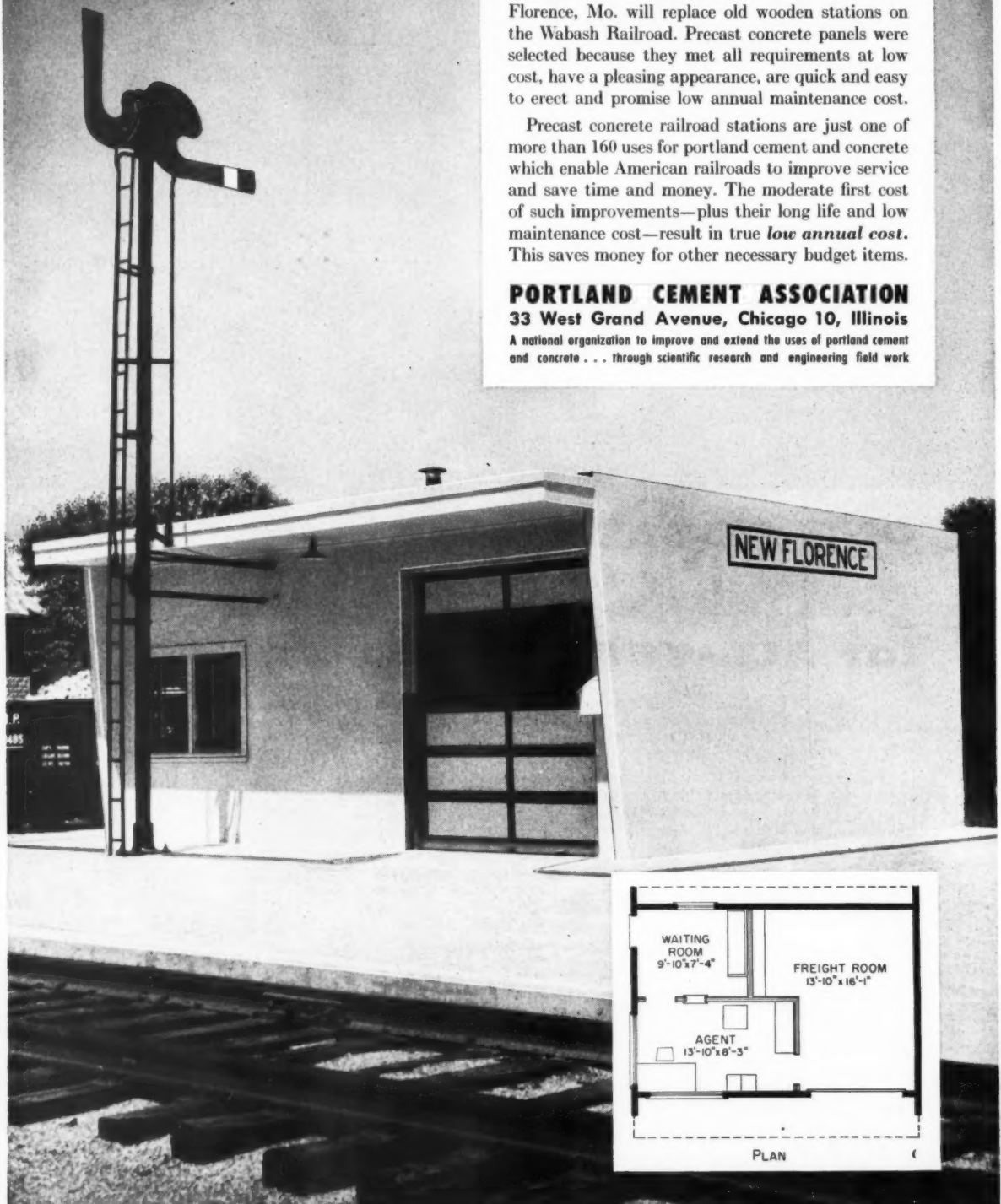
Precast concrete stations such as this one at New Florence, Mo. will replace old wooden stations on the Wabash Railroad. Precast concrete panels were selected because they met all requirements at low cost, have a pleasing appearance, are quick and easy to erect and promise low annual maintenance cost.

Precast concrete railroad stations are just one of more than 160 uses for portland cement and concrete which enable American railroads to improve service and save time and money. The moderate first cost of such improvements—plus their long life and low maintenance cost—result in true *low annual cost*. This saves money for other necessary budget items.

PORTLAND CEMENT ASSOCIATION

33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work



PLAN

You can't beat

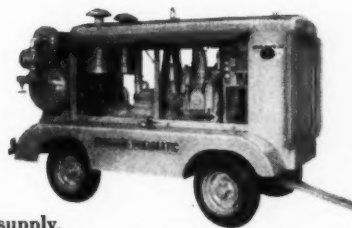
CP EQUIPMENT FOR BRIDGE AND BUILDING!



The CP-610 Air Wrench is ideal for pre-bolting or running high strength bolts for permanent assembly. The CP-610 meets requirements for turn-of-the-nut method for proper tensioning of high strength bolts . . . it's 7 pounds lighter and 2 inches shorter than any tool of comparable rating, yet delivers up to 50% more torque output.

You can't beat

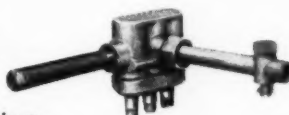
CP Portable "Power Vane"
Rotary Compressors for a
completely dependable air supply.



Available in 125, 210, 365, 600, and 900 cu. ft. models.

You can't beat

a lightweight
CP Triple Scaler!
7000 blows a minute
hammers old paint, rust or scale
without damaging underlying surfaces.



You can't beat

easy handling
CP Reversible Wood Borers
for boring up to 4" holes
on bridge and trestle and
other timber construction work.



You can't beat

the CP Boyer Rivet Buster!
Has a powerful 11" stroke—
easily cuts 1" rivets—
and has quick change
retainer for chisels and
backing out punches.



You can't beat

CP Air Grinders and Wire Brush
Machines for their well-balanced
handling qualities. They remove a
maximum amount of metal and
scale in record time.



You can't beat

CP Portable Sump Pumps for
removing dirty water and oil from
Diesel Engine pits. Draw water
down to within 1/8" from
bottom of the pump base.

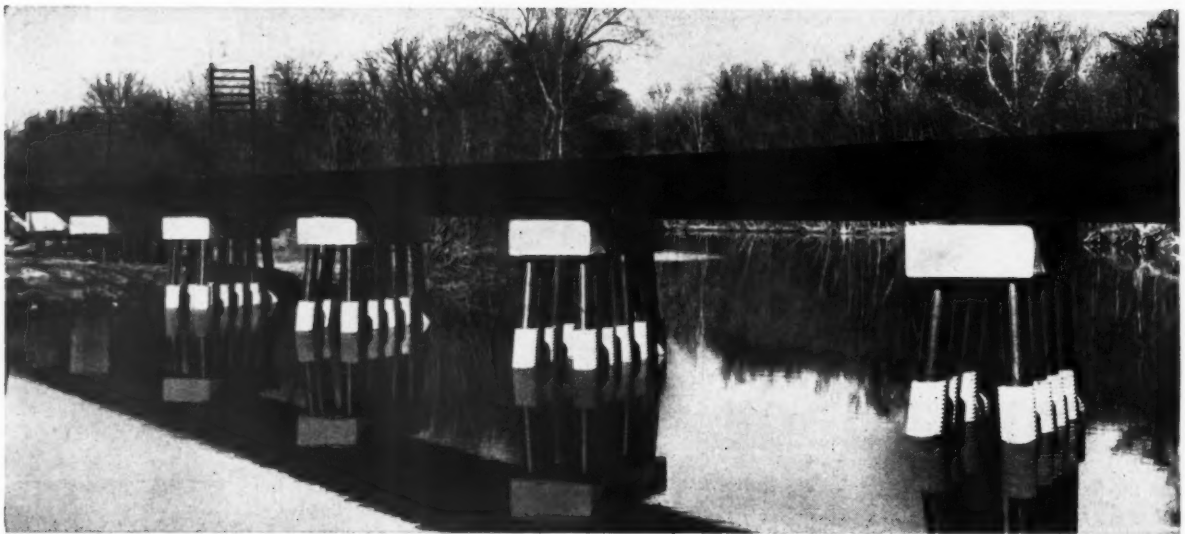


Chicago Pneumatic 8 East 44th Street, New York 17, N. Y.

SPEED RECORDERS AND INDICATORS • STATIONARY AND PORTABLE AIR COMPRESSORS • PNEUMATIC AND ELECTRIC TOOLS • HYDRAULIC RIVETERS

RAILWAY TRACK and STRUCTURES

OCTOBER, 1957 7



Finished view of rebuilt structure across Sugar Creek. Collars of Armco Corrugated Metal Pipe extending above water level provide protection against floating debris.

Unique Construction Method Used To Rebuild Bridge with Armco Piles

When originally constructed, the Pennsylvania Railroad Bridge over Sugar Creek in southern Indiana consisted of five steel spans supported on wood pile bents with wood caps and blocking.

Several years ago it was evident that the blocking and piles had to be replaced. New bents were designed using Armco Steel Pipe Piles. Here's how the job was done.

First, a temporary tower bent was driven in the center of each existing span; then a turntable was mounted on top of the bent. Each span could be opened to permit driving the Armco Piles under the original structure and also quickly closed for railroad traffic.

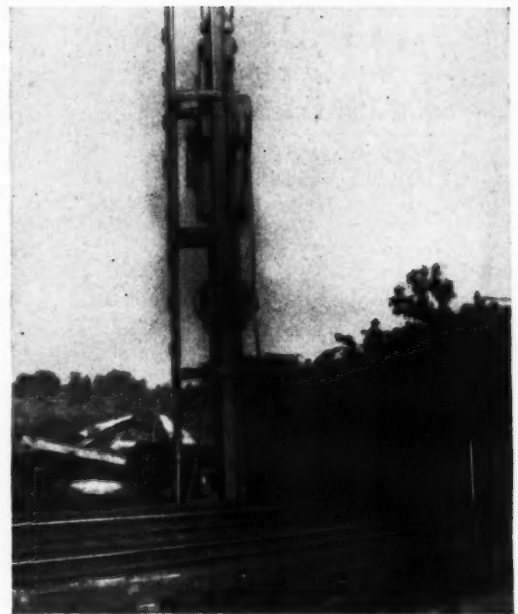
After the Armco Piles were driven, filled with concrete and topped with a concrete cap, the existing superstructure was shifted onto the new supports and the old piles removed.

* * *

Write us for complete data about Armco Steel Pipe Piling. Armco Drainage & Metal Products, Inc., 4937 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

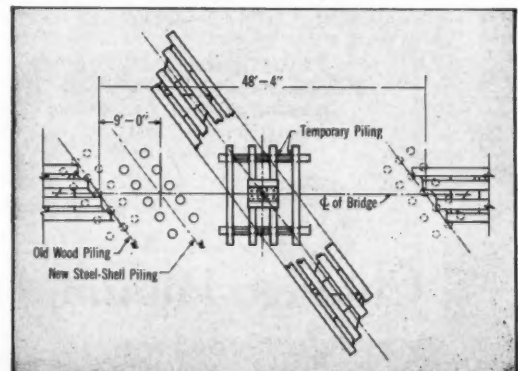


ARMCO STEEL PIPE PILING



With the span swung out of the way on a special turntable, it was easy to drive the Armco Pipe Piles on correct line.

The contractor devised this turntable arrangement to permit driving without disturbing the existing substructure.





→ 700 SERVICE-FREE YEARS! ←

Hundreds of HURCOLS in service on Class 1 Railroads have run up more than 700 service-free years.

The total replacement parts business from *all* our HURCOL customers totals up to less than the price of two tickets to a Broadway show!

Let us prove the HURCOL'S superiority on your own road.

Features of the HURCOL Rail Lubricator

Still only \$392, with two applicators—delivered anywhere

- Installed in one hour
- No rail drilling or other rail preparation
- No wear—no contact between wheels and lubricator
- Operates at any speeds
- Uses standard grease— is easily refilled
- Lubricates three miles each way
- Can be installed inside or outside of rail
- Output easily adjusted by a hand wheel

Arrange To Test The HURCOL Lubricator At Our Expense.

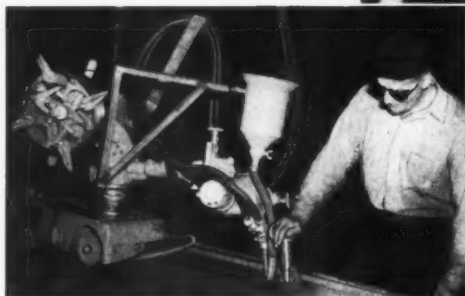
Ask Us For Details . . .

H. T. KENNEDY COMPANY, INC.
67 WEST 44TH STREET · NEW YORK 36, N. Y.

Serving Railroads at Every Turn *Linde* TRADE-MARK



Above: Continuous Rail Laying



Left: Rolling Stock Fabrication and Repair

Below: Structure Welding and Cutting



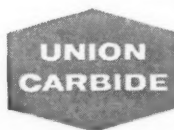
In shops, on bridges, and along the right of way — LINDE's modern metalworking processes are helping the nation's railroads maintain efficiency, and modernize for the future . . . at minimum cost and time.

Backed by over 40 years of accumulated know-how, LINDE's unmatched engineering facilities are being used to help customers solve welding, cutting, and heat-treating problems of all kinds. Coast to coast, LINDE engineers and service representatives are helping the railroad industry constantly to improve road and shop fabricating operations.

For a complete line of modern electric welding, oxy-acetylene welding, oxygen-cutting, flame-hardening, and continuous rail welding apparatus—look to LINDE.

RAILROAD DEPARTMENT
LINDE COMPANY

DIVISION OF



CORPORATION

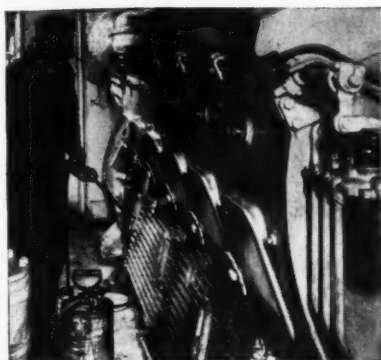
30 East 42nd Street, New York 17, New York

In Canada: LINDE COMPANY, Division of Union Carbide Canada Limited, Toronto

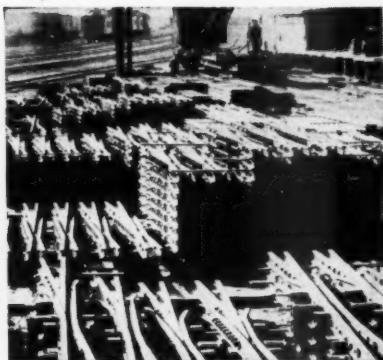
The familiar symbol of over
forty years' service
to the railroad industry.



"Linde," "Oxweld," and "Union Carbide" are registered trade-marks of Union Carbide Corporation.



Cleaning diesel interiors



Outdoor storage protection



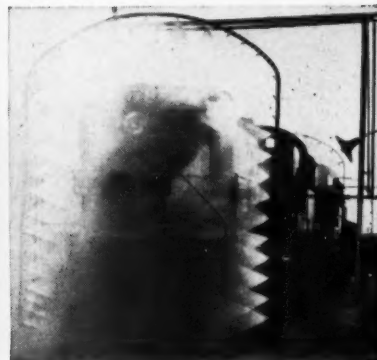
Systems for mineral-free water



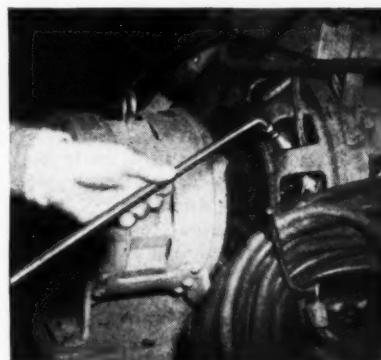
Cleaning and de-odorizing



NO-OX-ID® protects bridges



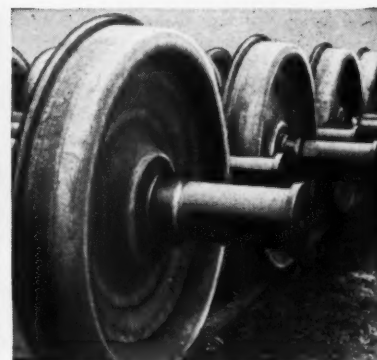
High-pressure spray washing



Cleaning electrical equipment



NO-OX-ID keeps rail joints, switches, signals, car journals corrosion-free



In the shop...along the way

DEARBORN SAVES AS IT PROTECTS

Dearborn's products and services save money and improve railroad maintenance. This coupon will bring you complete details.

Dearborn

Serving America's railroads for 70 years



Dearborn Chemical Company
Dept. RTS, Merchandise Mart Plaza, Chicago 54, Ill.
Please send details on Dearborn's complete railroad service.

Name.....Title.....

Railroad.....

Address.....

City.....Zone.....State.....



Proof of the Seal

This Bird Self-Sealing Tie Pad is removed for inspection after 5 years of service. Because of its tenacious seal, the pad had to be pried from the tie with an adze. Bird Self-Sealing Tie Pads maintain dimensional stability . . . cannot stretch or compress . . . provide a constant unbroken seal.

Proof of the Protection

Unretouched photograph of cross section of tie shows underplate area, including spike holes, after 10 years' protection by Bird Self-Sealing Tie Pad. There is no trace of the destructive effects of moisture and abrasion in these vulnerable areas. Moisture and abrasive materials could not penetrate the seal.



Effective Tie Pad Performance Depends on the Seal...

and you get Proof of the Seal with BIRD Self-Sealing Tie Pads

The performance of tie pads depends on the permanent and effective seal between the pad and the tie. Any tie pad that is not securely sealed to the tie simply provides a shelter for accumulated moisture and abra-

sive materials. These destructive agents cause the breakdown of the supporting power of the tie under the plate and the holding power of the spike wood.

Bird Self-Sealing Tie Pads are the *only* tie pads whose durable and effective seal with the tie has been proved through years of in-track service. Actual in-track installation also proves that Bird Self-Sealing Tie Pads increase tie life sufficiently to pay the cost of tie pads many times over. These savings represent a substantial reduction in track maintenance costs.

In your '58 budget plans, be sure to allow for Bird Self-Sealing Tie Pads. For an interesting booklet giving facts and figures on dollar savings, write to Bird Tie Pads, East Walpole, Massachusetts, Department HTS.

Bird Self-Sealing Tie Pads Are Recommended For:

Bridge Decks • Curves • Switch Timbers
Highway Grade Crossings and Other
Paved Areas • Crossing Frogs
Insulated Joints • With Smaller Tie Plates
Pile Cutoffs • Through Station Platforms
Out-of-Face Installations in Rail-Laying
Programs • Sandy Locations
All other locations where tie life is
short or replacement costs are high.

Buy the Best...

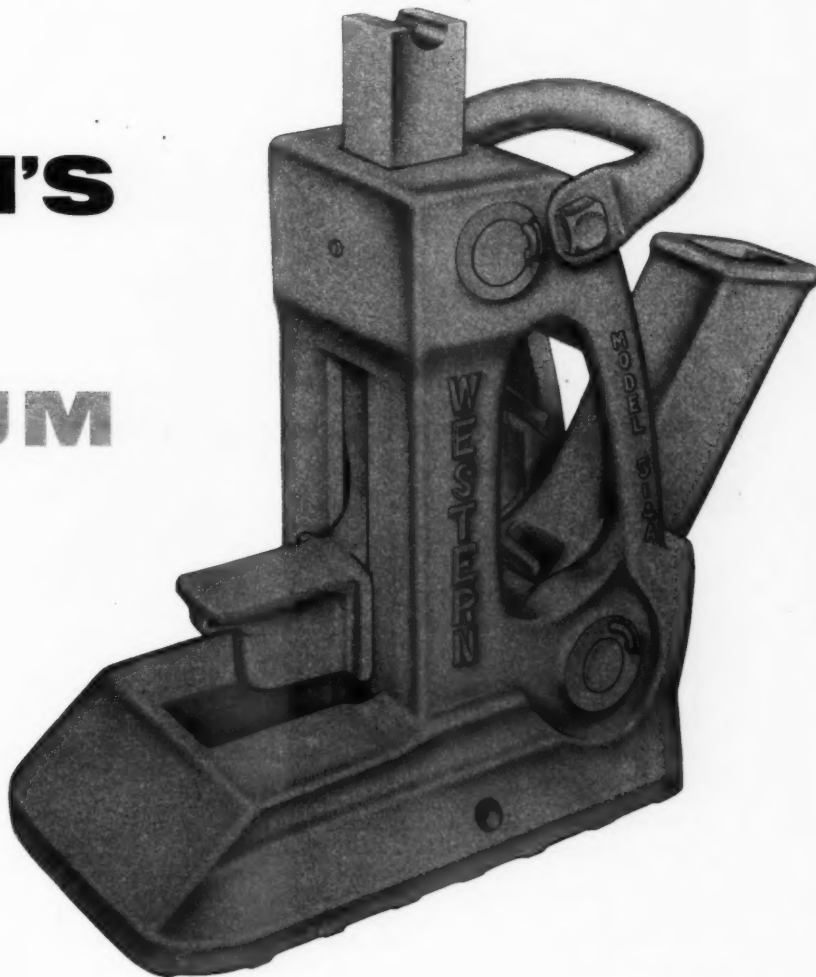


Buy BIRD

**25% Lighter...
and still a heavyweight lifter!**

WESTERN'S NEW ALUMINUM TRACK JACK

MODEL NO. 514-A



High-powered, fast-moving mechanized track raising and tamping crews can't advance any faster than the gangs working ahead of them. This is where Western's new aluminum track jacks really shine, keeping track crews moving forward at a high rate of efficiency. Regular section men like these jacks, too, because they are easier to handle. This model also available with malleable iron frame.



MODEL 514-A FEATURES

- Weight, only 32 pounds.
- Lift, 5 inches.
- Closed Height, 11 inches.
- Frame, high strength aluminum alloy.
- Safe, positive ratchet trip mechanism.
- Rigid bail handle (horn type optional).
- Capacity, *standard* 15 tons, on head or toe.
- Base area, over 66 square inches, heavily ribbed for sure footing.

6910A

*Write for Details
on Model 514-A and
Western's Complete
Line of Track Jacks*



WESTERN

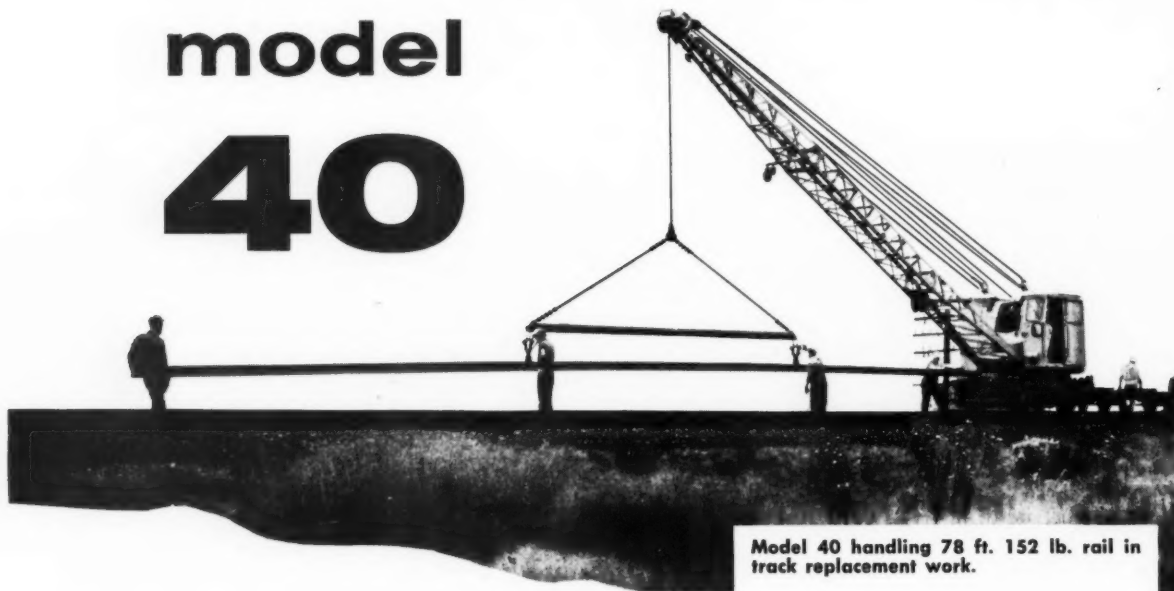
**RAILROAD
SUPPLY
COMPANY**

Division of Western Industries, Inc.

2400-2434 South Ashland Avenue • Chicago 8, Illinois
IN CANADA: Melville Machinery Co., Ltd., 515 Bisson Street, Montreal 3, Quebec

BURRO

model
40



Model 40 handling 78 ft. 152 lb. rail in track replacement work.

bigger... faster... more powerful

Already in service on a number of railroads, the newest Burro Crane . . . Model 40 . . . is proving itself to be as efficient and versatile as the Model 15A and Model 30 Cranes. Greater capacity, faster travel speeds and increased drawbar pull give the Model 40 a wider operating range and permit its use on more jobs with even greater operating economies. Also, the increased power and speed permit the Model 40 to be used for handling continuous rail.

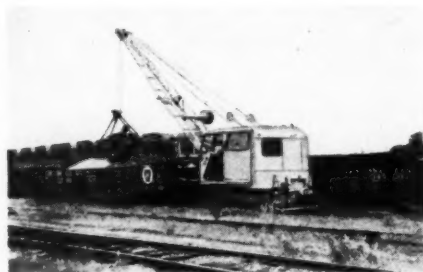
Model 40 Features:

- 12 Ton Capacity
- Travel speeds to 28 mph.
- 9000 lbs. drawbar pull
- Improved air operated controls
- Compact design, short tail swing — will not foul adjoining track.
- Available with Booms up to 55 ft. long

Write for illustrated brochure and complete details on Model 40 Burro Cranes.



CULLEN-FRIESTEDT CO.
1301 SOUTH KILBOURN AVENUE • CHICAGO 23, ILLINOIS



Equipped with clamshell bucket, Model 40 is a fast, efficient bulk material handling crane.



Loading rail. Model 40 will haul 6 to 8 loaded cars.



Early in 1955 the main line of the Southern Pacific in the Sacramento area was treated with 1.2 lbs. of Du Pont "Telvar" W per foot-mile. A year later a similar low dosage rate was applied. Note the excellent results shown above.

For low-cost, long-term weed control use Du Pont **TELVAR**[®] weed killers

monuron and diuron

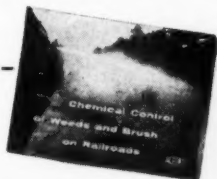
For weeds and grasses... Du Pont "Telvar" Weed Killers, used separately or in combination with other herbicides, provide long-term control that cuts yearly maintenance costs. Few chemical herbicides, if any, have excelled "Telvar" in holding weed control on a main-

tenance basis. In some areas, rates as low as ten pounds per acre applied just once a year have done the job. Where weeds are annuals, a single, low-dosage application often suffices for initial weed problems, too. Available in two formulations: "Telvar" W and "Telvar" DW.

On all chemicals, follow label instructions and warnings carefully.



BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY



For copy of the new 24-page free color brochure, "Chemical Control of Weeds and Brush," use coupon at right.

E. I. du Pont de Nemours & Co. (Inc.),
Grasselli Chemicals D-4032, Wilmington, Delaware.

Please send me your brochure A-2678, "Chemical Control of Weeds and Brush."

Name

Firm

Address

City State

FOR MEN WHO BUY EQUIPMENT FOR WHAT IT SAVES

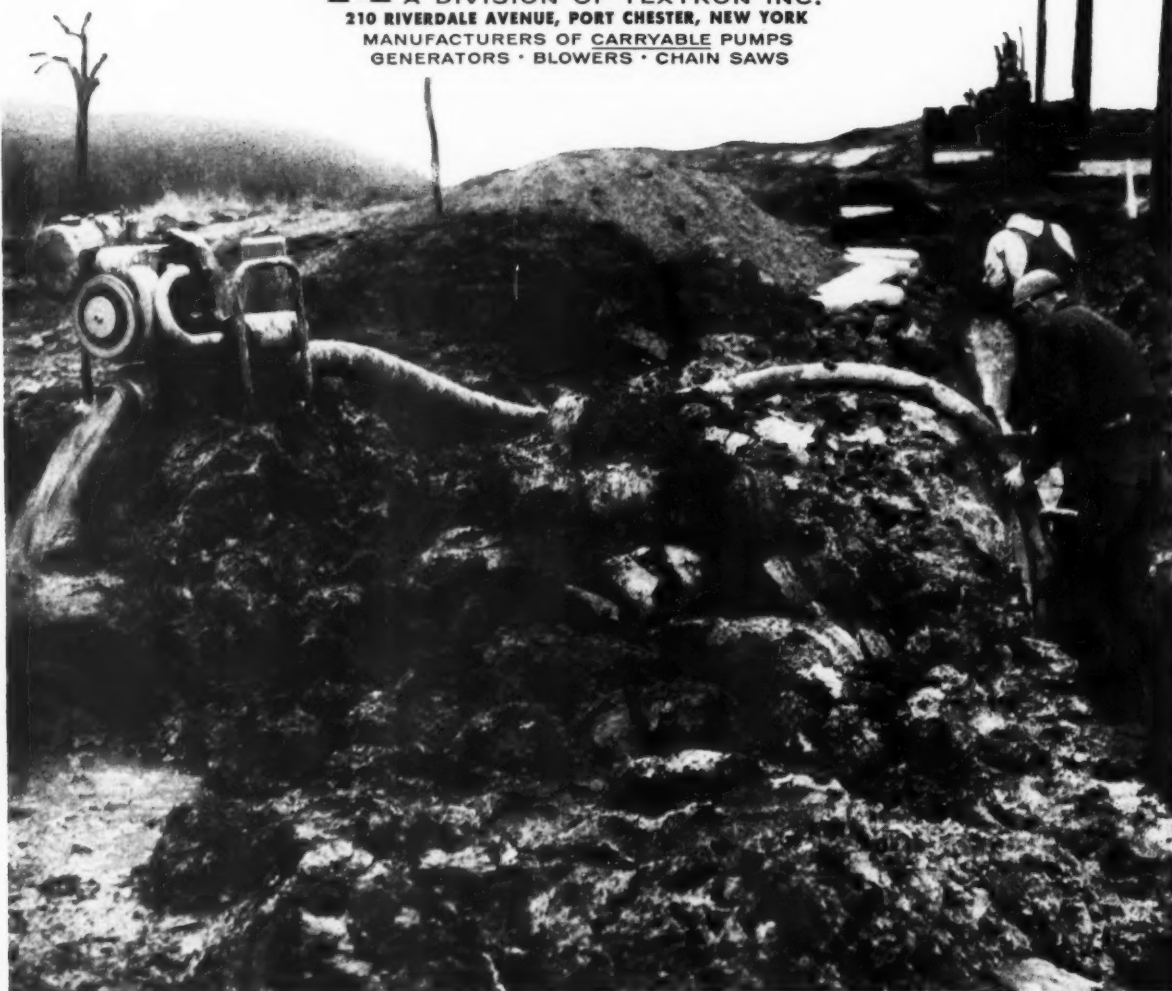
"Not one dime's worth of maintenance"

*Mr. Joe Cloghessy, Pres.
T. F. Cloghessy, Inc.
Hammond, Ind.*

That's this contractor's cost record with a Homelite Diaphragm Pump. Zero for maintenance . . . and he used the pump every day for three months on all types of tough, dewatering jobs. Was convinced last winter . . . when other pumps clogged with hardened sand and clay. The Homelite Diaphragm Pump worked when others

wouldn't. Handles water thick with mud, sand, clay, gravel freely. Pumps 5,000 gals. per hour. Handles seepage easily. Starts instantly. Primes fast. Easy on fuel. And lightweight . . . weighs only 120 lbs. Prompt service available from your local Homelite Factory Branch. Write or call for demonstration.

HOMELITE
A DIVISION OF TEXTRON INC.
210 RIVERDALE AVENUE, PORT CHESTER, NEW YORK
MANUFACTURERS OF CARRYABLE PUMPS
GENERATORS • BLOWERS • CHAIN SAWS



PLENTY TOUGH

and ready to prove it!



MOSS *Creosoted Black Gum* CROSSINGS

● These Moss Crossings are tough. They're built to take it. Heavy vehicular traffic pounds at them day after day, month after month, year after year, yet many Moss Crossings have been in service fifteen years and more, with very little sign of deterioration. For crossings that are sturdier, more rugged, that render longer service with a minimum of maintenance ...specify Moss Creosoted Black Gum Crossings.

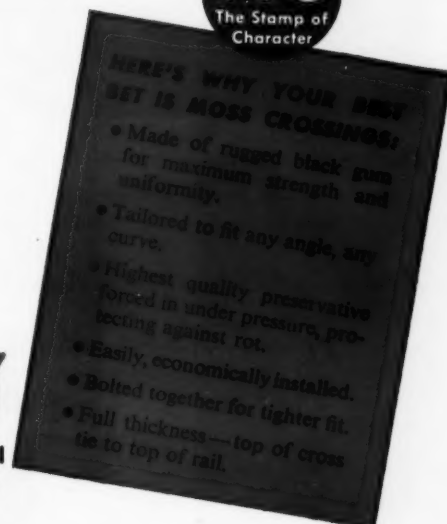
T. J. MOSS TIE COMPANY

700 SECURITY BUILDING • SAINT LOUIS 2, MISSOURI

Cross Ties • Switch Ties • Lumber • Poles and Posts • Piling • Crossings

WOOD PRESERVING PLANTS: E. St. Louis, Ill.; Granville, Wis.; Shreveport, La.; Columbus, Miss.

RAILWAY TRACK and STRUCTURES



OCTOBER, 1957

17



REPORT OF A DECADE OF PROGRESS

BALLAST CLEANING

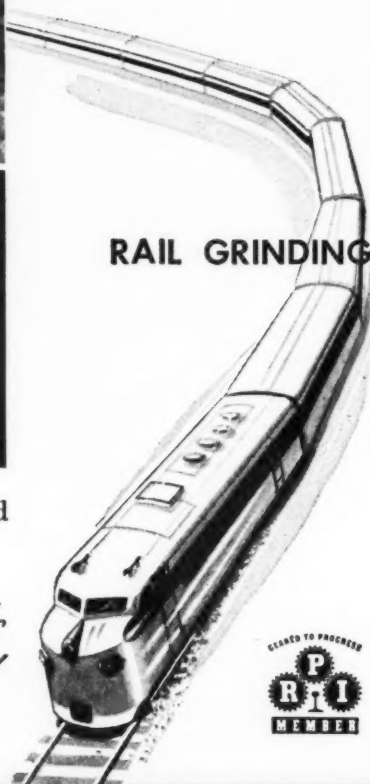


The repeat business which we have enjoyed
through the years proves the value of our
service and prompts our slogan:

*Just Ask the Railroads
That have used us!*

SPENO

RAIL GRINDING



| 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 |
|--|---|---|---|--|--|---|---|--|--|
| DL&W PRR SOU.Ry B&MRR CRRNJ CNO&TP The D&H | DL&W PRR SOU.Ry B&MRR CRRNJ CNO&TP IC | DL&W PRR SOU.Ry B&MRR CRRNJ CNO&TP | DL&W PRR SOU.Ry CNO&TP C&O P-RSL | DL&W PRR SOU.Ry CRRNJ CNO&TP C&O P-RSL | DL&W PRR SOU.Ry CNO&TP IC C&O NYCRR CNRys CPRy RDG ACL | DL&W PRR SOU.Ry CRRNJ CNO&TP IC C&O NYCRR CNRys CPRy RDG ACL NKP AGSRR CCC&STL IHBRR | DL&W PRR SOU.Ry CNO&TP IC C&O NYCRR CNRys CPRy ACL AGSRR CCC&STL IHBRR B&OCT B&ARR B&O P&LE | DL&W PRR SOU.Ry CRRNJ CNO&TP The D&H IC C&O NYCRR CNRys RDG ACL AGSRR CCC&STL IHBRR B&OCT B&ARR B&O P&LE | DL&W PRR SOU.Ry CNO&TP The D&H IC C&O NYCRR CNRys RDG ACL AGSRR CCC&STL IHBRR B&OCT B&ARR B&O P&LE Erie CB&QRR N&WRy MCRR |

| 1955 | 1956 |
|---|--|
| Erie DL&W LV The D&H B&O C&O | Erie DL&W LV The D&H B&O DT&I PRR NKP WMRy IC |

FRANK SPENO RAILROAD BALLAST CLEANING CO., INC.

306 North Cayuga St., Ithaca, N. Y.

if it's **Remington**, it's right!

save time and
money with
ONE power unit

FOR SURFACE GRINDING • FROG GRINDING
• RAIL SLOTTING • SWITCH POINT
GRINDING • CROSS GRINDING • WIRE
BRUSHING • BOLT HOLE DRILLING



*Combination Rail Grinding Model 23 has
7 great features that make it right for you!*

- Powerful gasoline engine develops 8½ hp.
- Wheels insulated against interference with signal systems.
- Outriggers available to fit any gauge track.

- Entire unit rolls easily on track, allows machine to follow operator.
- Wheelbarrow mounting with pneumatic tire for easy mobility; can be moved off track by one man.
- Patented ball slip-lock connection for quick change of attachments.
- Pull-up crank starter for fast, kick-free starts in any weather.

MODEL 23 Rail Grinder. Single-cylinder, 4 cycle, air-cooled gasoline engine. Horsepower ratings—6½ hp. at 2200 rpm.; 7¾ hp. at 2700 rpm.; 8½ hp. at 3200 rpm. Welded tubular steel frame, 20" x 4" pneumatic wheel. L. 83", W. 30½", H. 34" 100 lbs. Includes outrigger, ¾" x 10' flexible shaft, 10' flexible shaft housing.

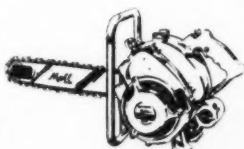
Remington

MALL TOOL COMPANY
Division of Remington Arms Company, Inc.
Bridgeport 2, Connecticut

Mall®



½" impact wrench specially designed for railway work.



Gasoline, electric and pneumatic chain saws for every requirement.

Specifications subject to change without notice.

Now! Cut maintenance costs!

Here is one of the most powerful, most versatile railroad maintenance machines ever designed! It is the product of 30 years' experience. Designed to cut maintenance costs, it has been tested and proved on America's leading railroads.

This famous Combination Rail Grinder, Model 23, is produced with the same quality and precision that have made Remington—the newest name in power tools—famous for 141 years in sporting firearms and ammunition. This Rail Grinder makes it possible for one man to do a wide variety of jobs with no time-consuming conversions necessary, because our patented ball slip-lock connection enables the operator to change attachments instantly. No threading to bother with.

For complete information about Remington's specialized Mall railroad tools, just send the convenient coupon below.

MALL TOOL COMPANY
Division of Remington Arms Company, Inc., Dept. K-39
Bridgeport 2, Connecticut
Please send me your **FREE** railroad tool catalog.

NAME _____
RAILROAD _____
STREET _____
CITY _____ ZONE _____ STATE _____

Dear reader:

Freedom to progress—A Responsibility

Sometimes people need to learn of the misfortunes of others if they are to have a proper realization of their own good fortune. Supervisory officers in the maintenance of way and structures department experience numerous problems and troubles in carrying out their responsibilities. It is not our intention to belittle these problems, but in at least one respect these officers are much more fortunate than their brothers in the mechanical department.

I refer to the freedom with which maintenance-of-way engineers can introduce improvements in tracks and bridges and in the equipment and methods used in repairing them. They are at liberty, for example, to make practically any changes they feel are desirable in the track structure. If they don't like any of the available rail sections, they can devise one of their own and start using it without getting approval from any higher authority outside their own road. Similarly, they may introduce a new rail anchor, or hold-down fastening, or any other track device, or they may make changes in the ballast section, in their tie-treating practices, or in the dimensions of their ties. The same applies to changes in the design of bridges and buildings.

What's more, the M/W people can establish their own standards of maintenance, assuming, of course, that those standards are satisfactory to management. They do not have the problem of making their structures conform to rigid standards set up by an outside authority, and they need not be concerned that their handiwork will be subject to close examination by inspectors from outside equipped with calipers, micrometers, levels, or the like.

Now, with this picture in mind, let's consider the sorry plight of our colleagues in the mechanical department. Because rolling stock, particularly cars, is interchanged between railroads, operational features of this equipment must conform to standards established by the AAR, and are subject to inspection by representatives of the ICC. This standardization extends even to such details as the height of foot boards and the size and spacing of rivets and bolts.

Suppose a railroad wishes to apply a new or improved device to its freight cars. To be specific, let's say it's a new draft gear that's involved. The road just can't go ahead and start using the gear it wants. First, it has to get a certificate of approval from the AAR. And before the AAR can issue the certificate it must put the device through a series of rigorous tests. Several years may elapse before a certificate is issued, assuming, of course, that the gear passes all the tests. Improvements in brakes, brake rigging, slack adjusters, journal brass, bearings, lubricator pads, and many other parts are all subject to this cumbersome, time-consuming procedure before they can be adopted.

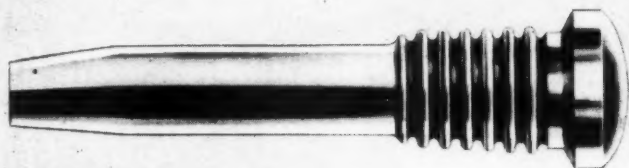
It is thus apparent that maintenance of way people have a measure of freedom not accorded their associates in the mechanical department. But freedom is always accompanied by responsibility. In this case the maintenance man's responsibility, as we see it, is to work always for progress in the refinement and perfection of the properties under his supervision, making full use of the freedom he has to do so.

MHD

ALL ALONG THE LINE...

THIS RACOR TEAM EXTENDS TIE LIFE

..REDUCES SPIKING COSTS



THE RACOR STUD (Patented)

Securely driven becomes integral with tie plate and restricts lateral movement effectively. This adds up to greatly reduced tie abrasion, a reduction of spike killed ties and a minimum of tie splitting. In addition to this extension of tie life, Racor studs pay off handsomely in reduced track maintenance. Because these sturdy anchor studs maintain better line and gage, they defer tie replacement, and they reduce labor costs. Many tests have shown a reduction of 50% in tie wear. Put Racor studs to work on your road. They'll pay big dividends all along the line.

THE RACOR DUAL DRIVER DD-4

(Patent applied for)

The DD-4 will drive Racor studs in the anchor position of tie plates and will effect substantial savings in line spiking costs. Studs or spikes are distributed in tie plate holes by hand. The DD-4 drives two studs or spikes simultaneously, then resets automatically for the next two. It has the advantage of two powerful pneumatic hammers, yet one man can drive twice as many studs or spikes without relief or fatigue. Take advantage of these time and cost-saving benefits. The DD-4 will prove well worth your while all along the line.

Write today for prices and complete descriptive literature.



AMERICAN
Brake Shoe
COMPANY

RAILROAD PRODUCTS DIVISION
530 FIFTH AVENUE • NEW YORK 36, N. Y.

the
new



the world's finest
tamber...now the
world's *fastest!*

*new, higher production of
better tamped track*

HERE IS the world's highest tamping efficiency. In dollars per foot of perfectly tamped track, the *Matisa Speedtamber* will give your M/W budget a real assist.

This machine retains the unbeatable *Matisa* principle of vibration-compaction tamping with the machine load always on tamped track, but now has many *PLUS* features:

Now hydraulically positioned tamping units for positive action, faster production. The most efficient use of hydraulics has been applied throughout the machine.

Now V-belt drives with multiple disc clutches — adds safety, cuts maintenance, eliminates gears and noise.

Now instantaneous split-head operation switches from speed surfacing to deep tamping without interruption.

Now pneumatic control valves with assured separate air supply from a small compression on the diesel engine.

For details, write for the New *Matisa* Speedtamber brochure.

MATISA EQUIPMENT CORPORATION

COPYRIGHT 1957, MATISA EQUIPMENT CORP.

1020 Washington Avenue • Chicago Heights, Illinois

News notes...

RAILWAY

TRACK and STRUCTURES

... a résumé of current events throughout the railroad world

The AFL-CIO executive council has authorized President George Meany to issue a charter to the Brotherhood of Railroad Trainmen. Mr. Meany, it is reported, is expected to confer first with other unions on a jurisdictional issue and on a so-called "racial" clause in the BRT constitution.

Yardmasters would get classified as operating employees if Congress should act favorably on a proposal to assign their grievance cases to the First Division of the National Railroad Adjustment Board. The proposal is in a bill, H.R. 9388, which was introduced too late for consideration before adjournment this year, but which remains alive for the 1958 session.

The Pennsylvania has announced the discontinuance of its transcontinental sleeping car services with the publication of its fall passenger timetables. A decline in patronage of the Pacific Coast cars was said to be responsible for the decision. The road will, however, continue to operate its other through-car schedules, including routes to southwest points via the Missouri Pacific and Frisco-MKT. These latter routes, according to a railroad officer, still carry a substantial volume of through-car business.

Edward J. Kehoe, formerly with the U. S. Atomic Energy Commission and now staff assistant to the manager of ACF Industries at Albuquerque, N. M., predicts that, based on the rapid progress of reactor technology, railroads can have their first atomic locomotive in operation in 1960. In his paper, submitted to the Ninth Pan American Railway Congress at Buenos Aires, Argentina, Mr. Kehoe said the first atomic locomotive would be a prototype and will probably be unable to compete with diesel locomotives in cost.

The Securities and Exchange Commission and the Commerce Department have estimated jointly that the railroads in 1957 will make expenditures for new plant and equipment amounting to approximately \$1.46 billion compared with \$1.23 billion in 1956—an increase of 18 per cent. Capital outlays for all industries, it was estimated, will rise 6 per cent over last year's total.

A suit has been filed by 26 non-scheduled airlines against 34 railroads, requesting \$99.6 million in damages resulting from the quoted rates which the rail carriers agreed to offer the government for the movement of military personnel. The air lines claimed they suffered damages to the extent of \$33.2 million, and are asking three times that amount, under the "treble damage clause" of the anti-trust laws.

Donald J. Russell, president of the Southern Pacific, has been selected to receive the 8th annual National Defense Transportation Association's award as "the person who has made the most outstanding contribution in the preceding year to the solution of emergency transportation problems affecting national defense." Formal presentation of the award will be made at the association's annual dinner to be held at the Sheraton Park Hotel in Washington, D.C., on November 21.

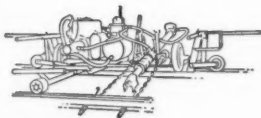
You can beat the high cost of tie renewal with ...



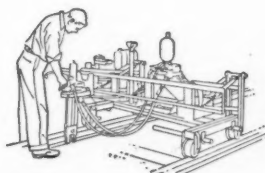
Fairmont

THE FAIRMONT W90 SERIES A TIE HANDLER (shown at left) saves time . . . money . . . and manpower on any tie renewal job! If replacements are made with the track raised, the W90 is equipped with a boom . . . the tie is quickly removed and a new one is easily inserted. It is also an efficient tie inserter when the track is not raised. The W90 is self-propelled . . . requires only two men for operation . . . can be readily removed from track at point of operation. Speed up your tie renewal program and keep your cost accountants happy with Fairmont Tie Renewal equipment—write or call today!

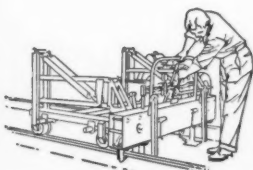
Other Tie Renewal Equipment by Fairmont



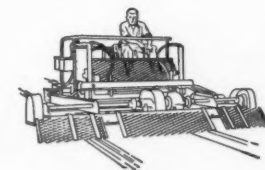
W68 SERIES A HYDRAULIC TIE REMOVER removes ties at an average rate of approximately one per minute. Ruggedly built with a minimum of moving parts. Requires only two-man operation.



W84 SERIES B HYDRAULIC SPIKE PULLER is primarily for use in tie gangs. Light in weight, it features a ball-and-socket-mounted pull assembly. Will pull from either rail without change-over.



W86 SERIES A HYDRAULIC RAIL LIFTER features a spring-counter-balanced lifting arm, welded steel supporting frame and a direct-driven hydraulic pump. Two-man track removal.



W87 SERIES B TIE BED SCARIFIER with one operation can dig a tie bed a minute, to a controlled depth at right angles to rails. Assembly and drive are hydraulically operated.

W83 SERIES B TIE NIPPER (not illustrated) features a simple linkage and lever which guarantee positive opening and closing of hooks. The handle can be placed in three different positions.

FAIRMONT RAILWAY MOTORS, INCORPORATED FAIRMONT, MINNESOTA

MANUFACTURERS OF BALLAST MAINTENANCE CARS, DERRICK CARS, OIL SPRAY CARS, GROUTING OUTFITS, TIE RENEWAL EQUIPMENT, RAIL RENEWAL EQUIPMENT, WEED CONTROL EQUIPMENT, HY-RAIL CARS, TRACK MOTOR CARS, PUSH CARS AND TRAILERS.

Helps from Manufacturers

The following compilation of literature—including pamphlets and data sheets—is offered free to railroad men by manufacturers to the railroad industry. To receive the desired information, write direct to the manufacturer.

RAIL WELDING. A new 8-page brochure has recently been made available describing the manufacturer's "Thoroweld" production-line welding plant installation. Illustrated with photographs and printed in two colors, the pamphlet describes the advantages of the production-line welding set-up and incorporates a chart which shows the physical features of the installation and lists the component equipment and personnel required to operate the system. (Write: *Matisa Equipment Corporation, Dept. RTS, 1020 Washington Avenue, Chicago Heights, Ill.*)

MAINTENANCE. Many questions which the average maintenance-of-way engineer would ask regarding types of products to use in order to attain the longest service at the lowest cost are given in a new "Maintenance Guide" recently released. Subjects discussed include foundation waterproofing, floor surfacing, painting, roof and bridge restoration, highway crossings, road, walk, platform and parking area construction or repair, and painting of equipment. The booklet, which contains more than 100 pages, is profusely indexed for quick access to the information. To permit inclusion of new data or revisions, the volume is bound in an expandable loose-leaf cover. (Write: *Acorn Paint & Chemical Company, Dept. RTS, Cleveland 2, Ohio*)

MAINTENANCE MACHINERY. Three new bulletins have recently been released by the manufacturer, describing the Self-Propelled Adzer, the Dun-Rite Bronco, and the Hydraulic Power Jack. The bulletins, respectively designated as Nos. 276, 269 and 267, are of two pages each and incorporate photographs and descriptive text describing the machines. Bulletin 276 describes the new improvements—including self-propulsion—which have been added to the adzer; Bulletin 269 describes the operating advantages of the Bronco—a crawler tractor which provides mechanical propulsion for the Dun-Rite Gaging Machine and Gager; and Bulletin 276 points out the operating features of the Hydraulic Power Jack. (Write: *Nordberg Manufacturing Company, Dept. RTS, Milwaukee 1, Wis.*)

SECTION CARS. A new, four-page, two-color bulletin, designated No. 75734A, has recently been released describing the advantages of the model No. 534-A section car. The car's automatic clutch-transmission is explained and complete specifications on the physical features and operation of the car are incorporated. (Write: *Northwestern Motor Company, Dept. RTS, Eau Claire, Wis.*)

ELECTRIC PLANTS. A sixteen-page, two-color booklet has recently been released describing the application of "Vacu-Flo"-cooled electric plants. The booklet illustrates and describes a wide variety of generating plant applications where difficult installation and ventilating problems were overcome. It is issued as Volume 12, No. 4, of the company's publication, "Power Points Digest." (Write: *D. W. Onan & Sons, Inc., Dept. RTS, Minneapolis 14, Minn.*)

HEATERS. A 20-page bulletin, designated No. 460, has recently been made available describing the manufacturer's oil fired Caban heaters for heating cabooses, small depots and shops. The bulletin, illustrated with photographs and drawings, explains the operation of the Caban heaters and points out their utilization in different illustrations. (Write: *Vapor Heating Corporation, Dept. RTS, 6240 W. Howard Street, Chicago 31, Ill.*)

GREASE SEALS. Benefits which, it is claimed, can be derived from using the manufacturer's grease seals in Caterpillar equipment are explained in a new booklet, "The Big Three," recently released. In two colors, the illustrated booklet outlines why every owner or prospective owner of Caterpillar equipment should place extra emphasis on the grease seals used in his machines to get proper work from them. The booklet, designated Form 32449, is also available in French, Portuguese and Spanish. (Write: *Caterpillar Tractor Company, Dept. RTS, Peoria, Ill.*)

BALTIMORE & OHIO—**Andrew F. Huber**, former assistant engineer at Cincinnati, Ohio, and more recently assistant trainmaster at Newark, N. J., has been promoted to trainmaster at Newark.

Joseph R. Rymer has been appointed division engineer at Chicago.

BOSTON & MAINE—**Stanley G. Phillips**, chief engineer at Boston, has been elected vice-president - engineering. In combining the headquarters of the Portland and New Hampshire divisions, at Concord, Me., **James J. Winn**, formerly division engineer at Dover, was transferred to Concord, succeeding **C. H. Higgins**, assigned to special duties. **Richard E. Sampson**, assistant division engineer at Concord, continues in that capacity in the combined office. **E. B. Tourtellotte**, supervisor of bridges and buildings at Greenfield, Mass., has been promoted to assistant division engineer in charge of construction at Greenfield. **R. U. Simpter**, assistant supervisor bridges and buildings, succeeds Mr. Tourtellotte. **C. D. Pierce**, assistant supervisor, bridges and buildings, at Dover has been transferred to Greenfield, replacing Mr. Simpter. **F. A. Ingalls**, resident engineer at Boston, has been named assistant division engineer of the Terminal division at Boston.

CANADIAN NATIONAL—**B. Chappell**, assistant chief engineer, Western region, at Winnipeg, Man., has been promoted to chief engineer there, succeeding **J. L. Charles**, who has been appointed consulting engineer at Winnipeg. **E. S. English**, district engineer at Montreal, has been promoted to assistant chief engineer of the Western region succeeding Mr. Chappell. **M. L. McLeod**, roadmaster at Boston Bar, B.C., has been promoted to assistant division engineer at Kamloops. **R. C. Weller**, assistant division engineer at London, Ont., has been appointed division engineer at Hornepayne. **J. E. Sinclair**, assistant engineer maintenance of way at Winnipeg, has been appointed engineer terminal operation succeeding **W. T. VanDeventer**, who has been named division engineer, The Pas. **J. B. Kerby**, division engineer, The Pas, has been appointed division engineer at Port Arthur, Ont., succeeding **A. G. McIntyre**, who has been transferred to

Kamloops. **V. R. Cox**, division engineer at Kamloops has been promoted to assistant district engineer of the British Columbia district, succeeding **M. B. Hansen**, who has been named assistant engineer maintenance of way at Winnipeg. Mr. Hansen succeeds **R. M. Bailey**, who has been named district engineer of the Saskatchewan district. **C. D. Worby**, district engineer of the Saskatchewan district, has been transferred to the British Columbia district. **W. B. Redman**, structural field engineer at Toronto, Ont., has retired after 37 years of service. **Jack A. Leslie**, assistant division engineer at Kamloops, has retired after 45 years of service.

CANADIAN PACIFIC—**A. K. Rowntree**, division engineer at London, Ont., has been transferred to the Montreal terminals, succeeding **R. S. Allison**.

ERIE—**Joseph F. Schnell** has been appointed chief clerk to the chief engineer, Cleveland, succeeding **Robert F. Denton**, who has retired after more than 46 years of service.

ILLINOIS CENTRAL—**E. J. Dean**, has been appointed supervisor of track at Durant, Miss., succeeding **W. M. Morrison**, who has been transferred to Jackson, succeeding **P. H. Croft, Jr.**, who has been named assistant to the division engineer of the Memphis Terminal division at Memphis, Tenn. Mr. Croft succeeds **Hugh R. Miller**, who has been transferred to the Memphis division at Memphis, succeeding **H. F. Davenport**, who has been named division engineer of the Memphis division succeeding **T. M. Pittman**, retired.

LACKAWANNA—**Alfred H. Henckel**, division engineer of the Morris & Essex division at Hoboken, N. J., retired recently.

MISSOURI PACIFIC—**J. E. Martin** has been named assistant division engineer at Kansas City, Mo., succeeding **D. J. Bortel**, who has been promoted to division engineer at DeQuincy, La., succeeding **C. L. Colvin**, who has retired after 44 years of service.

NEW YORK CENTRAL—**B. J. Gordon**, materials engineer at New York, has been named assistant district engineer at Syracuse, succeeding **J. N. Grim**, who has retired after 44 years of service.

READING—**H. F. Smith**, assistant chief engineer at Philadelphia, has been promoted to chief engineer, succeeding **Frederick W. Biltz**, who retired September 1. **J. Everett Good**, engineer of bridges, has been promoted to assistant chief engineer succeeding Mr. Smith. **J. K. Fisher**, assistant to chief engineer at Reading Pa., has been named assistant chief engineer—construction, a newly created position. **R. J. Fisher**, assistant engineer of bridges at Philadelphia, has been promoted to engineer of bridges, succeeding Mr. Good, and is succeeded in turn by **Lester E. Titlow**, assistant to engineer of bridges. **W. B. Calder**, senior engineer at Reading, has been named resident engineer there.

SANTA FE—**W. F. Martens**, general foreman of bridges and buildings of the Los Angeles and Los Angeles Terminal divisions, at San Bernardino, Calif., retired September 30.

SEABOARD AIR LINE—**G. L. Wynne**, assistant roadmaster at Tallahassee, Fla., has been promoted to roadmaster with headquarters at Hamlet, N.C., to succeed **W. C. Johnson**, who has retired from active duty because of his health.

SOUTHERN PACIFIC—**John S. McCauley**, has been named division engineer at Bakersfield, Calif., succeeding **James G. Sinclair**, who has been promoted to assistant to principal assistant division engineer at Los Angeles. **Russell E. Frame** has been named senior assistant division engineer at Los Angeles.

UNION—**A. J. Wilson**, assistant to chief engineer, has been promoted to assistant chief engineer at East Pittsburgh, Pa.

Obituary

Joseph T. Kaier, who was named division engineer of the Morris & Essex division of the Delaware, Lackawanna & Western at Hoboken, N. J., on August 1, died August 16.

Biographical briefs

Charles G. Grove, 66, who recently retired as area engineer—construction of the Pennsylvania at Chicago (RT&S, Aug., p. 12), graduated from Pennsylvania State University and joined the PRR in 1912 as a rodman at Philadelphia. He held various positions in the maintenance of way departments of the Eastern and Central regions of the road until 1928 when he was named division engineer of the St. Louis division. He was transferred to the Panhandle division in 1931 and, in 1933, was named superintendent of the Wilkes-Barre division. He subsequently

(Continued on page 74)



S. G. Phillips
B&O



H. F. Smith
Reading



F. W. Biltz
Reading



J. E. Good
Reading

now it's easier to Destroy Weeds...

with ready-to-use, easy-to-apply

EFFECTIVE...ECONOMICAL

UREABOR®

WEED and GRASS KILLER



Here's your thrifter, easier way to stop weeds! Look in that hand and you'll see enough UREABOR to kill vegetation in a 12 sq. ft. area! Consider the convenience and economy this can mean to you.

Consider, too, that a UREABOR "kill" remains effective for a season or longer. And UREABOR has important safety features; it is *nonflammable*, *nonpoisonous* when used as directed, and *does not corrode* ferrous metals. Protect your timber structures, yards and buildings from fire-hazardous weeds by applying UREABOR weed killer now...it's easier to apply!

Write today
for complete
information!

AGRICULTURAL SALES DEPARTMENT

United States Borax & Chemical Corporation

PACIFIC COAST BORAX COMPANY DIVISION

630 SHATTO PLACE, LOS ANGELES 5, CALIFORNIA

Nothing to mix...no water to haul

One easy application—dry—may keep ground weed-free for a season or longer!

This special spreader for UREABOR makes application fast and easy...

The PCB Spreader applies UREABOR to best advantage, at prescribed low rates. It holds enough UREABOR to treat up to 2500 sq. ft. without refilling—weighs a mere 6 lbs. Available now for just \$10.75 delivered—anywhere in the U.S.A.



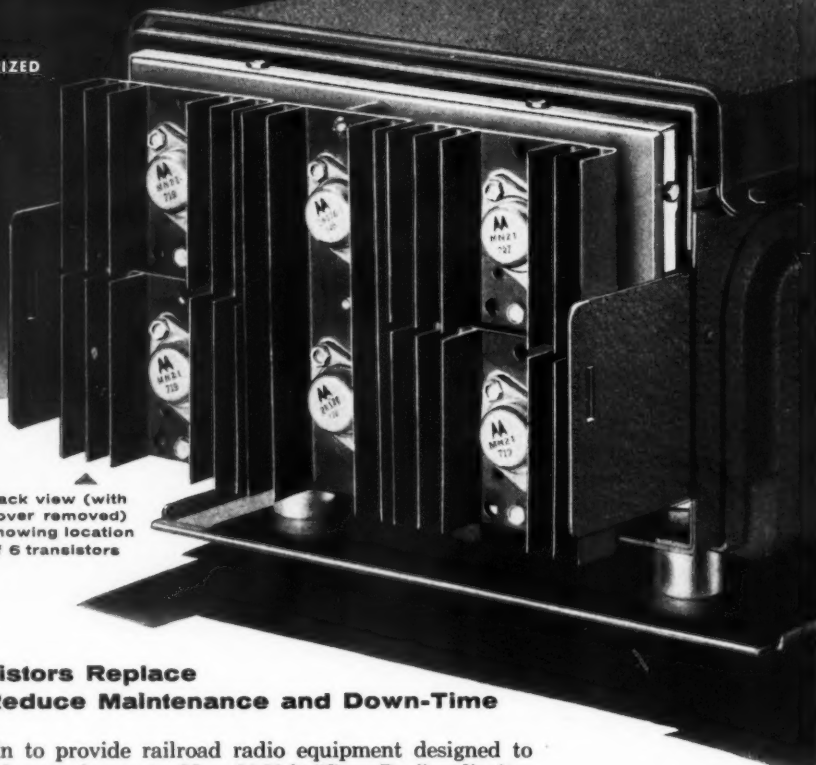
NEW TRANSISTOR-POWER[®] 64-VOLT STAN-PAC RADIO

TRANSISTORIZED VOLTAGE
REGULATION

COMPLETELY TRANSISTORIZED
POWER SUPPLY



Back view (with
cover removed)
showing location
of 6 transistors



Long Life Transistors Replace the Vibrator...Reduce Maintenance and Down-Time

Motorola is first again to provide railroad radio equipment designed to lower maintenance and operating costs. New 64-Volt "Stan-Pac" radio features a transistorized power supply for *both* receiver and transmitter. There are no vibrators, expensive converters or rotary machinery. That means that installation costs are lowered...maintenance is simplified and can be performed by the communications department alone. No longer are two separate crafts required to service one radio.

Here's another Motorola exclusive—"Stan-Pac" radio's new transistorized voltage regulator. Now battery voltage can climb as high as 80 volts without affecting radio performance. Built-in regulator automatically maintains the voltage fed to the radio at a constant value.

Get all the facts today on this revolutionary new railroad radio. Write, wire or phone for complete information on Motorola's new transistor-power 64-Volt "Stan-Pac" radio.

another Railroad *FIRST*
from Motorola



MOTOROLA RAILROAD RADIO

Motorola Communications & Electronics, Inc. • A SUBSIDIARY OF MOTOROLA, INC. • 4501 Augusta Blvd., Chicago 51, Ill.

Reduce Rail Maintenance Costs with RTW Grinders and Drills

The Model P-22 Portable Flexible Shaft Grinder

The Model P-22 Portable Flexible Shaft Grinder speeds the free hand finishing of surface welds on rail ends, crossings, frogs, flange ways, switch points and stock rails. This grinder is mounted on a one wheel carriage for easy transporting. A 6 hp air-cooled gasoline engine drives a counter shaft to which a flexible shaft is coupled. The engine is mounted on a ball bearing swivel plate which permits the maximum free movement in handling the flexible shaft which transmits the power to the grinding wheels. The speed of the grinding wheels can be regulated by a governor adjustment on the engine, so as not to exceed maximum speed of 9,500 surface feet per minute permitted under the safety code for high speed grinding wheels.



MODEL P-22

Model P-45-A Portable Rail Surface Grinder

Model P-45-A Portable Rail Surface Grinder is an easily portable one-man Cup Wheel Grinder. It is modern and has been designed for greater durability and accuracy in grinding welded rail ends, removing mill tolerance and scale ahead of heat treatment of rail ends. This grinder will give a very smooth highly polished surface. The Model P-45-A is powered by a 3½ hp air-cooled gasoline engine with a V-Belt drive that acts as an overload release to prevent damage to other moving parts. An attachment is provided for tightening the V-Belt. A screw in a vertical side frame equipped with bronze gibs permits take-up adjustment to compensate for wear and gives accurate adjustment to the Cup Wheel.



MODEL P-45-A

The Model P-43 Power Track Drill

The Model P-43 Power Track Drill embodies many features to help to speed rail maintenance at reduced cost. It is powered by a 1½ hp air-cooled gasoline engine. The V-Belt drive acts as an overload release in the event the drill bit becomes cramped or sticks during operation. There are quick and simple adjustments for leveling the drill both on the top of the rail head, and supporting screws insure perfect alignment when drilling through angle bars or for bare rails. In case a bit binds and causes the motor to stall before a hole is completed, a stop on the rail head bracket permits the backing out of the bit. Positive, easily controlled screw for feeding bit. A telescopic extension in the rail head bracket facilitates drilling around switches. Openings up to 13" fully extended, permits drilling at the heel of switches and other locations around switches, the drilling rails and guards in position. An outrigger attachment can be supplied if it is desired to use this machine on the track. It is quickly attached or detached for on or off-track operation. A knurled appliance between the handles of the outrigger provides a means for leveling the machine to compensate for various weights of rail.



MODEL P-43

Write today for complete information covering the equipment described above or on any of the equipment listed below.

Railway Trackwork Co.

3207 KENSINGTON AVE., PHILADELPHIA 34, PA.

RAILWAY TRACK and STRUCTURES

TRACK MAINTENANCE MACHINERY

Rail Grinders • Switch Grinders • Cross Grinders • Surface Grinders • Rail Drills • Ballast Extruders • Bit Sharpeners • Tie Nippers • Grinding Wheels • Cut-off Wheels • Track Liners

OCTOBER, 1957 29



"No weeds and brush to hide in anymore . . . they've killed 'em with Chipman chemicals!"

Chipman chemicals and application service are backed by 45 years of railroad experience. An extensive line of weed, grass and brush killers is available to meet varying conditions. Included are:

| | | |
|-----------|---------|--------------|
| Atticide | Chlorea | Brush Killer |
| Atlas "A" | Chlorax | Telvar W |
| Atlas "D" | TCA | Borax |

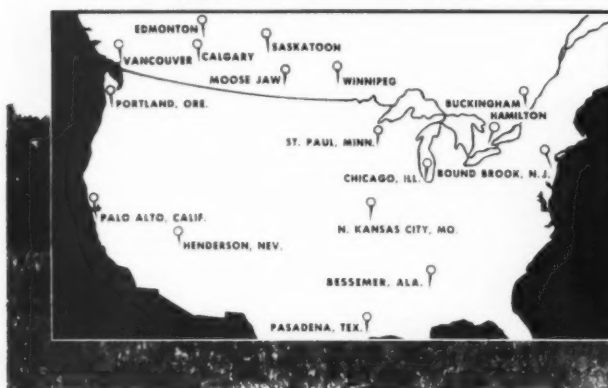
Let us solve *your* weed problems with the *right* chemicals and application service!

CHIPMAN

Chemical Company, Inc.

Bound Brook, New Jersey

17 Strategically Located Chipman Plants





SO SMALL - SO LIGHT SO EASY TO MOVE!

no other gasoline powered compressor like it!



With lifting bar in place, two men can easily carry the SPOT-AIR across tracks or over obstacles. And with the wheelbarrow mounting shown below, one man can move it with ease, keeping up with the progress of the job.



*...yet Spot-Air provides
ample, low-cost power
for FOUR TIE TAMPERS*

For railway maintenance work you need a compressor you can take anywhere—operate anywhere. That's the Ingersoll-Rand SPOT-AIR—the smallest, most *portable* self-powered compressor ever developed. It weighs only 265 pounds, ready to run. It takes up only 27" by 27" of floor space on a section car. One or two men can easily move it from place to place on the job.

The SPOT-AIR is built to stand up in heavy duty service. Its air-cooled engine operates

under extreme weather conditions with no danger of freezing or overheating. Simplicity of design, with heads, valves, carburetor and magneto all readily accessible, reduces maintenance time to the minimum.

For maintenance of way, bridge construction, grade crossings, signal repairs and a host of other railroad jobs—the SPOT-AIR gives you dependable, low-cost air power, anywhere, any time. For full details, send for a copy of new Bulletin 2264-B.

 **Ingersoll-Rand**
2-308 11 Broadway, New York 4, N. Y.

AIR POWER AND AIR TOOLS FOR LOW COST MAINTENANCE OF WAY

RAILWAY TRACK and STRUCTURES

OCTOBER, 1957 31

Burlington Route

SURFACES DOUBLE TRACK

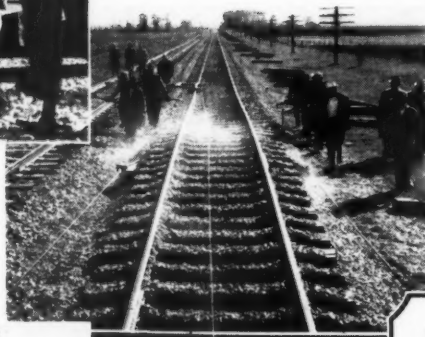
the easy way!



When it comes to track resurfacing, the Chicago, Burlington & Quincy Railroad is sold on the MANNIX SLED. This Mannix-perfected equipment is saving time and money . . . helping to keep double track in top condition for the famous "Burlington Zephyrs". Write, phone, or wire Mannix International . . . discover how rental of the Mannix Sled can speed your resurfacing program.



With the Sled under the track, the operation begins. Ballast used here is steel mill slag.



First pass of Sled has given track a 4" raise. Second pass, after ballast distribution, now gives a further 4" lift.



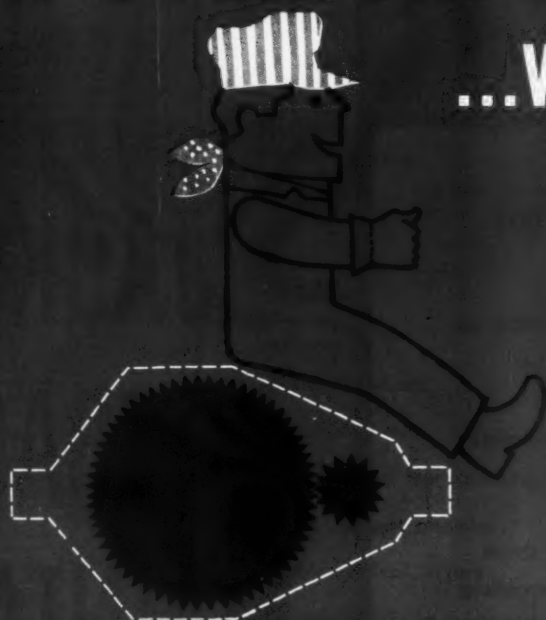
Mannix Sled is followed by Mannix Double-Track Liner, assuring distortion-free track behind sled operation.



4020 Minnetonka Boulevard, Minneapolis 16, Minnesota

Phone: WAInut 7-9411

NEW ESSO ARAPEN GEAR LUBRICANT GIVES TRACTION MOTOR GEARS DEPENDABLE LUBRICATION FOR OVER SIX MONTHS



...WITHOUT
GREASE
ADDITION!



Arapen Gear Lubricant—an important new traction motor gear lubricant developed by Esso Research—is now available to *you*. But before going on the market, this remarkable new product was thoroughly tested in the lab and *on the road*.

On the New York Central... Arapen Gear Lubricant was tested for 18 months in regular diesel freight service. The test proved the feasibility of six months' operation without additional lubrication.



Performance Advantages of ARAPEN GEAR LUBRICANT:

ANTI-LEAKAGE CHARACTERISTICS: maintains consistency through full range of operating temperatures, resulting in a minimum of drippage on ties, pits and station platforms.

EXCELLENT OXIDATION STABILITY: permits extended operation without hardening.

EXCELLENT STRUCTURE STABILITY: minimizes failures due to dry gears because of excessive gear case leakage.

EXCELLENT WEAR CHARACTERISTICS: provides proper lubrication throughout life of gears.

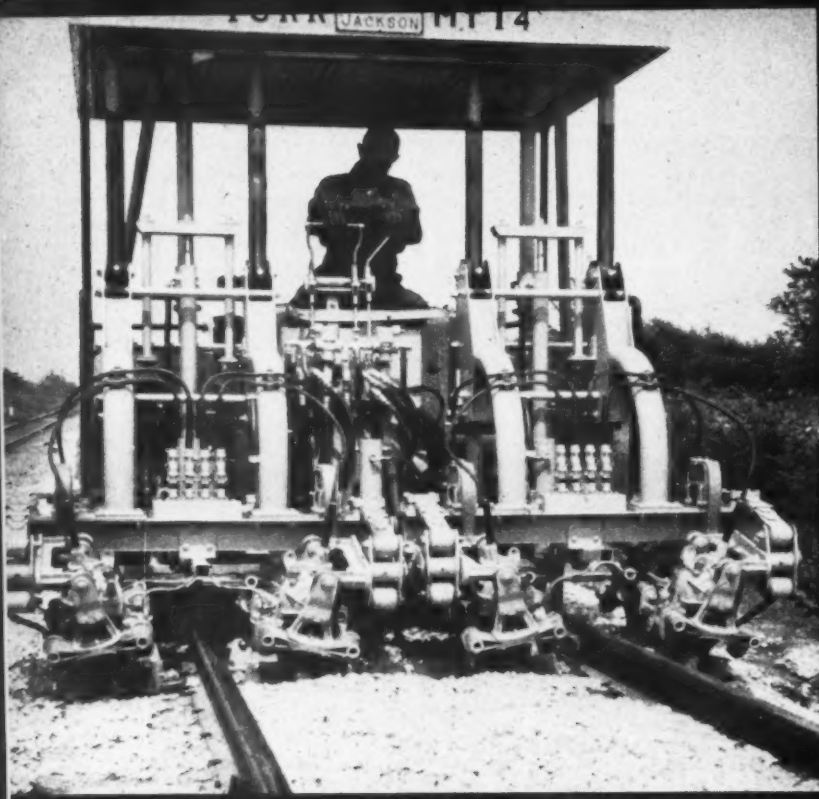
For complete information and technical assistance in the use of new Esso Arapen Gear Lubricant, call your local Esso office or write: Esso Standard Oil Co., Railroad Sales Div., 15 W. 51st Street, New York 19, N. Y.

RAILWAY TRACK and STRUCTURES



RAILROAD
PRODUCTS

OCTOBER, 1957 33



You can recommend it with complete confidence !!

When you recommend the JACKSON TRACK MAINTAINER as the very best, most economical means of both putting up and maintaining track of finest, uniform quality under all conditions and in all ballasts, you can do so with complete confidence . . . for, your good judgment is confirmed by literally scores of America's leading track chiefs . . . men who know from actual experience, daily use of these machines on their own roads, that it is far superior to anything in its category. Let us give you the complete facts and tell you where you can see these machines in action. How about telephoning right now!

JACKSON TRACK MAINTAINER



THE NEW JACKSON MULTIPLE

... relatively inexpensive ... unrivalled for low-cost, uniformly fine tamping in all operations involving medium to high lifts or any lift equal to or greater than the largest ballast used.

JACKSON MANUALLY GUIDED TIE TAMPERS

Exceedingly efficient and widely used by small gangs in low lift and smoothing work, cross-overs and spots the on-track machines can not reach.



JACKSON VIBRATORS, INC.
LUDINGTON • MICHIGAN

TRACK and STRUCTURES

Published monthly by the

**SIMMONS-BOARDMAN
PUBLISHING CORPORATION**

Executive Offices

30 Church St., New York 7

Editorial Offices

79 W. Monroe St., Chicago 3

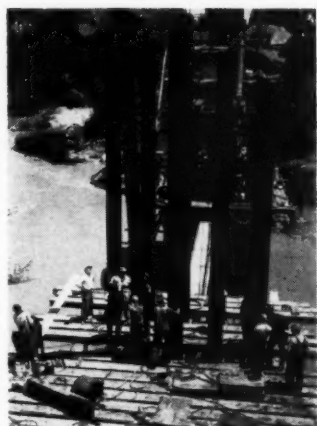
ROBERT G. LEWIS.....Publisher
MERWIN H. DICK.....Editor
R. E. DOVE.....Associate Editor
R. M. SCHMIDL.....Associate Editor
LILLIAN L. WATERS.....Editorial Assistant

James G. Lyne, President, Samuel O. Dunn, Chairman Emeritus, Fred A. Clark, Vice-President and Secretary, Harry H. Melville, C. W. Merriken, John R. Thompson, John S. Vresland, Robert G. Lewis, M. H. Dick, Vice-Presidents, Arthur J. McGinnis, Executive Vice-President and Treasurer, Duane C. Salisbury, Vice-President and Director of Railway Sales, Michael J. Figa, Director of Production, John Gavora, Jr., Assistant Treasurer.

Branch offices: 1081 National Press Bldg., Washington 4, D.C.; Terminal Tower, Cleveland 13; 214 Terminal Sales Bldg., Portland 5, Ore.; 244 California St., San Francisco 4; 1151 W. 6th St., Los Angeles 17; 3908 Lemmon Ave., Dallas 19, Tex.; Jericho Manor, Jenkintown, Pa.; 530 Sixth Ave., Pittsburgh, Pa. Foreign representatives: Sibley-Field Publishing Co., Ltd., 8/9 Clerkwell Green, London E.C. 1, England; Georg J. Linder, continental European representative, (16) Frankfurt a. Main, Wittelsbacher Allee 60, West Germany.

Subscription price to railroad employees only in the U.S., U.S. possessions and Canada, \$2.00 one year, \$3 two years, payable in advance and postage free. All other countries, \$8 one year, \$16 two years. Single copies 50c. Address correspondence concerning subscriptions to R. C. VanNess, director of circulation, 30 Church St., New York 7.

Member of the Associated Business Papers (ABP) and of the Audit Bureau of Circulations (ABC) and is indexed by Engineering Index, Inc.



RAILWAY TRACK and STRUCTURES

in this issue:

vol. 53, no. 10

OCTOBER, 1957

The conventions in words and pictures 37

A factual account of the highlights of the Roadmasters' and B&B meetings, illustrated by candid close-ups of conventioners.

Blueprint for total B&B mechanization 41

The C of Ga's W. E. Chapman gives his answer to the problem of how to get greater efficiency in B&B work.

Compressors now go on-track 44

How the North Western is equipping its Tractairs with retractable flanged wheels to get to those "hard-to-reach" work sites.

Ditch cleaning in long canyon 46

An on-the-spot report of how the Western Pacific is making use of special equipment in solving a troublesome problem.

'Wire' Lining 48

First there was the Nordberg Trak-Surfacers which surfaced "by wire." Now a wire is used to line curves as well as tangent track.

DEPARTMENTS

Dear Reader: 20

News Notes 23

Helps from the manufacturers 25

News about people 26

Biographical briefs 26

News briefs in pictures 52

Products 56

What's the answer? 58

Association news 76

Supply trade news 76

◀ DON'T MISS ...

Sufficient penetration couldn't be secured by driving these steel piles into bedrock. Yet, the 200-ft gap, created by the destruction of

a truss span by a derailed train, had to be rebridged quickly. Read how the Santa Fe restored traffic . . .

... in the November issue

More and more railroads are choosing Bulldog Rail Anchors

Improved BULLDOG Rail Anchors have 25% more holding power. They install twice as fast as before. Result: a fast-growing number of railroads are confirming these facts — and backing them up with orders.

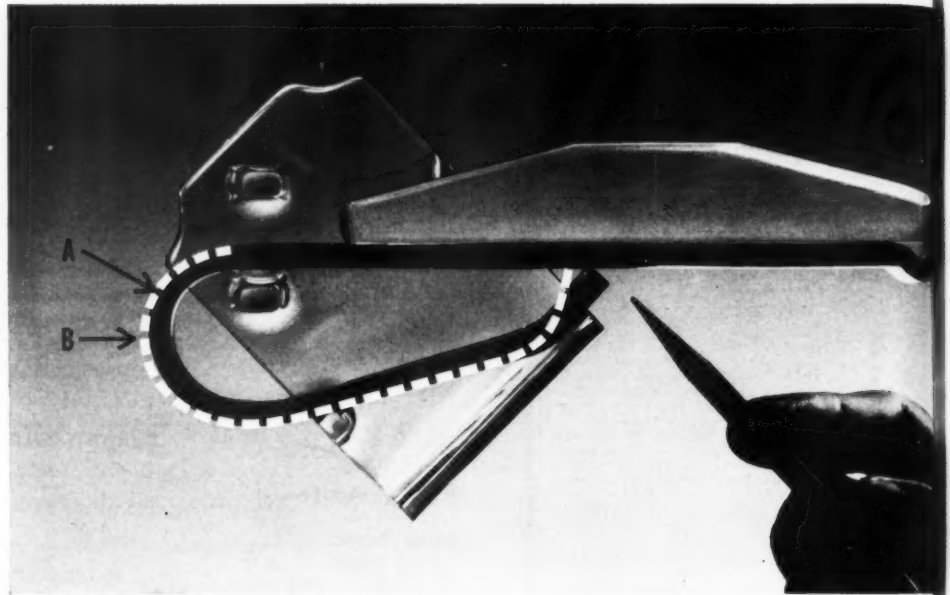
To meet this demand, True Temper's plant at Lake City, Pennsylvania, is turning out anchors by the millions. Because we use modern, automatic methods

to manufacture BULLDOG anchors under rigid quality-control conditions, orders are being shipped promptly.

For the full story — or if you would like to test the BULLDOG anchor on your own right-of-way — call or write True Temper, Railway Appliances Division, 1623 Euclid Avenue, Cleveland 15, Ohio. There is no obligation, of course.

FAST APPLICATION

comes from improved BULLDOG design. New contour of spring raises point (A on transparent model) where hammer strikes. This keeps force in a straight path along top of spring, requires only one or two hammer blows to install. Old design (dotted line B) dissipated some of this force.



HIGH HOLDING POWER

is achieved with two-way compression grip and great spring tension. Broad, flat tie-bearing surface transmits load over a wide area. Anchor does not bear on tie plate — cannot loosen plate or disturb spike.

HANDY WALL CHART

shows workmen best and quickest way to install BULLDOG anchors. For a free supply, write True Temper.

How to apply the True Temper BULLDOG Rail Anchor



OTHER TRUE TEMPER RAILWAY PRODUCTS: BULLDOG Ballast Forks, Weed Cutters • BULLDOG Shovels • BULLDOG Safety Rail Forks, Hammers, Sledges • BULLDOG Scythes

TRUE TEMPER 

**BULLDOG
RAIL ANCHORS**

YOU CAN LOOK TO  FOR LEADERSHIP

Theme of the conventions:

How you can do a better job

One a minute! That's about the rate at which an M/W supervisor, with ears and eyes wide open, could pick up ideas for improving the performance of himself and the forces under his supervision at the Roadmasters' and B&B conventions in Chicago last month.

He would have learned, for example, of new opportunities for savings through the use of radio, of new

developments in ballast cleaning, of ways to get better cooperation from the operating department, of methods of training personnel, of what is expected from him by management, and of a new approach to B&B mechanization (see page 41).

These ideas, and many others, he would have gleaned from committee reports and addresses.

"It is the consensus of this committee that most problems that confront the maintenance-of-way and transportation departments can easily be worked out if each department will stop and consider what is best for the railroad as a whole than what is best for his individual department."

This advice was contained in one of the nine committee reports presented before the annual convention of the Roadmasters' & Maintenance of Way Association, which was held at the Conrad Hilton Hotel at Chicago on September 23-25. During the same three-day period, members of the American Railway Bridge & Building Association were listening to six committee reports, plus several addresses, which were presented before separate sessions of that group at the same hotel.

In a report on the advantages of close cooperation between the maintenance-of-way and transportation departments, the committee quoted above noted that "great stress is always laid on avoiding delay to trains," but went on to point out that, "while train delays are readily discernible they may not be as costly as some delays to track work that are not so apparent."

The committee has this advice to offer the personnel of both departments: "Railroad management should insist that transportation officers and maintenance-of-way officers, particularly the junior officers,

fully acquaint themselves with the problems of both departments. Most maintenance problems, insofar as operations are concerned, could be solved at the local level by roadmasters and trainmasters, provided the trainmasters or other operating officials had a firm understanding of the problems involved."

Suggestions on the use of another means (radio) of getting more work time were offered by another Roadmaster's committee. "Radio is today's answer to the need for faster and more reliable communications", declared this committee. It described the types of radio equipment avail-

able, and the many ways it can be used to advantage in securing more productive hours of work. The committee quoted this comment from a report of a large maintenance operation in which radio was used: "With it emergencies were reduced to incidents, delays from breakdowns in machines were reduced to a minimum, and work train orders were kept up to the minute, being alerted instantaneously as conditions required. Above all, supervision, generally miles apart, conferred at will."

In a report on ballast cleaning, another Roadmasters' committee "determined that ballast cleaning



SUNDAY afternoon registration totaled 259, helped ease "Monday morning rush."

More convention pictures →

Around the registration desk . . .



A WINNER? J. E. Elsemann, district engineer, Santa Fe, looks on as W. H. Huffman, assistant chief engineer, C&NW, puts his ticket stub in the basket for the banquet prize drawing.



CHOW LINE. Members and guests formed a long line Monday morning waiting for their banquet tickets. Table assignment system eliminated scramble for tables Tuesday night.



HELPING OUT. S. E. Tracy, supt. work equip., CB&Q, registers A. M. Savage, industrial engineer, New York Central.



SIGNING IN. J. E. Shaw, roadmaster, T&NO, gets assist from Gordon Neal, supt., Chattahoochee Valley.



THANKS. Lewis Thomas (Q&C Co.) secretary of Track Supply Association, accepts cigarette from A. J. Reading, president.



CHECKING UP. L. P. Diamond, assistant engineer of research, Chesapeake & Ohio, looks over the list which contains the room numbers of supply company entertainment suites.



SPELL IT RIGHT. A. S. Moody, general roadmaster, ACL, registers as Leo C. Blanchard, roadmaster, Milwaukee Road, operates the typewriter on the Sunday afternoon shift.



E. L. Anderson
President-Elect
Bridge & Building Association

NEW OFFICERS— Roadmasters' Association

In the election of officers in the Roadmasters' Association, E. L. Anderson, assistant to the vice-president operations, Frisco, was advanced from 1st vice-president to president; C. E. Neal, division engineer of the Northwestern Pacific, was advanced from 2nd vice-president to 1st vice-president; and S. E. Tracy, superintendent of work equipment, CB&Q, was advanced from director to 2nd vice-president. R. G. Simmons, general roadmaster, CMSTP&P, was re-elected treasurer.

On the board of directors, E. F. Snyder, assistant to chief engineer, IC, was elected to a 1-year term and G. D. Mayor, division engineer, C&O, was appointed to serve a 2-year term. F. L. Etchison, chief engineer, WM, and W. C. McCormick, general roadmaster, SAL, were each elected to serve 4-year terms.

is essential to the maintenance of good track, and that failure to keep ballast clean results in unnecessary and increased expense, or lowered standards of maintenance." The maintenance officer must not only "sell" management on the potential economies of ballast-cleaning programs but must also convince management that the real "pay off" in reduced costs "results from teamwork of all departments to insure optimum use of working equipment."

Still another Roadmasters' committee, reporting on spot surfacing or smoothing track, offered several ideas for improvements in this field. This committee would like to see improvements in power tampers aimed at "making them a complete off-track unit capable of performing such op-



TICKET TABLE. W. H. Bunge, assistant engineer, MP, gets his banquet ticket. At table: A. J. Reading (National Aluminate Co.); F. W. Evinger (Lehon Co.); E. C. Gunther (Duff-Norton).



FIVE DOLLARS, PLEASE. J. M. Giles of the Caterpillar Tractor Company pays up as Elise LaChance, association secretary, types up his card as a dues-paid member.



WELCOME. R. R. Gunderson, engr. M/W, WM, and president of the Bridge & Building Association, opens first session.



PROGRAMMING. W. J. Jones, asst. engr. M/W, SP, goes over program with R. A. Baer, National Cylinder Gas Co.



WHAT'S NEXT? H. H. Gamble, asst. b&b supv., and W. B. O'Sullivan, track supv., both of the B&M, scan program.



ON THE JOB. Reception committee members R. H. Carpenter, district engineer, MP, and R. G. Simmons, general roadmaster, Milwaukee Road, await early arrivals.



BEFORE THE RUSH. J. A. Jorlett, engineer structures, PRR, and Lee Mayfield, resident engineer, Missouri Pacific, in their capacities as members of the reception committee.

erations as power jacking, automatic leveling and power lining, with line reference available to the operator."

Getting away from the strictly material aspects of the maintenance field, one of the Roadmasters' committees dealt with the human factor in a report on the training of personnel. This committee offered a complete program for the training of roadmasters or supervisors, foremen and machine operators. It also offered some advice. "In selecting men to receive training for positions of roadmasters or supervisors, 25 to 50 per cent should have the ability, education, and interest in the railroad to become its higher officials, such as division engineers, general officers, etc.," it said. "The balance of the men to be selected from outstanding foremen who have sufficient

education and are otherwise qualified and capable of handling the many duties of a roadmaster or supervisor."

Among the reports presented before the Bridge & Building sessions was one that discussed those things that management expects from the supervisor. "A supervisor is a tool of management that requires constant sharpening," declared this committee. "Management believes that the success of a supervisor is in direct ratio to the degree of planning he does—that it is through planning and programming that the number of emergencies he is involved in are reduced. Management should expect the supervisor to possess the qualities of leadership and creativity. He is continually expected to improve his ability to get things done through

people by improving his knowledge, skills, habits and attitudes."

In a report on mechanization, tools and equipment, another B&B committee, after discussing the various types of such equipment in use by the B&B forces, noted that "many new items or work methods are being introduced each year and adapted to particular needs that arise." "Most managements," it said, "have developed a healthy atmosphere that encourages creative thinking and ingenuity among supervisors and the employer. It is increasingly important for supervisors to be curious and intelligent in their selection of the best that is available to them."

The maintenance of machines was the assignment of another B&B committee. "It is the purpose of the men who are charged with the responsi-

Plenty of activities . . .



TALKING IT OVER. V. R. Copp, special engineer, Frisco, Fred W. Evinger, Lehon Company, and J. F. Hendrickson, assistant architect, Frisco, take a "breather" between sessions.



PLANNING THEIR DAY. Frank Simmons, Fairmont Railway Motors, Karl Clapper, general b&b foreman, DM&IR, and A. A. Smith, chief engineer of the DM&IR, discuss activities.



REALLY? Roy C. Patton (R. C. Patton Co.) listens as F. L. Etchison, chief engineer, WM, makes his point.



GREETINGS. J. E. Griffith, asst. ch. engr. M/W&S, Southern, and president of Roadmasters', addresses opening session.



SCANNING REPORTS. H. C. Bomar, sr. asst. div. engr., SP, and Lee F. Wedl, roadmaster of the Pacific Electric.



HOW'VE YOU BEEN? R. R. Gunderson, engineer M/W, Western Maryland, looks on as E. H. Barnhart, retired division engineer, B&O, is greeted by W. E. Chapman, ch. engr.—maint. C of Ga.



CHECKING THE SCHEDULE. R. K. Stoneberger, roadmaster, St. Louis-San Francisco, and J. D. Bothwell, roadmaster, Canadian National, plan their activities for the day.



W. H. Huffman
President-Elect
Roadmasters' Association

NEW OFFICERS— Bridge & Building Association

In the election of officers in the Bridge & Building Association, W. H. Huffman, assistant chief engineer, C&NW, was advanced from 1st vice-president to president; M. H. Dick, editor of *Railway Track & Structures*, was advanced from 2nd to 1st vice-president; S. M. Stephens, assistant to the executive vice-president, T&NO, was advanced from 3rd to 2nd vice-president; and H. D. Curie, master carpenter, B&O, was advanced from 4th to 3rd vice-president. The 4th vice-presidency was abolished. L. C. Winkelhaus, architectural engineer (retired), C&NW, was re-elected treasurer.

On the board of directors, G. W. Benson, division engineer, C of Ga, was re-appointed for a 1-year term and W. H. Bunge, assistant engineer, MP, and E. R. Schlaf, asst. supt. water service, IC, were re-elected for 3-year terms.

bility of properly maintaining their company's properties to do so in a manner that will most economically utilize money allotted to them," said this committee. "Mechanized equipment is one of their most valued tools in accomplishing this purpose. This valued tool requires considered maintenance by all concerned."

A committee reporting on branch-line bridges and buildings raised the question of the appearance of such structures. "The reaction the public gets from what it sees should at least be favorable," it said. "Unkempt, dilapidated, unpainted, and undermaintained branch-line structures cannot help but create an unfavorable opinion in the mind of the shipping public. No structure should be in such physical condition that it cannot proudly bear" the road's name.

Blueprint for total B&B mechanization

● In developing these remarks the World War II motto, "difficult things are done immediately, but the impossible takes a little longer," appealed to me very strongly, and I think we should keep it in mind as we face the challenge of the next few years in our work.

Even as our armed forces are now broken down into smaller combat units, motorized, mechanized and made into hard-hitting, fast-moving, flexible units, so is it necessary, in this age of high cost of labor and material, to organize, motorize and mechanize our bridge and building forces into flexible, hard-working, fast-moving, mechanized units in order to keep costs to a minimum.

As our imaginations are stimulated and we turn from the past and begin "to explore the horizons of the future" in our line of work, the impossible which takes a little longer will become a reality.

In describing, first the equipment and methods found to be very efficient and economical by the Central of Georgia and other roads, and, second, equipment which, in my opinion, when manufactured, will be an approach to the ultimate in bridge and building equipment, it is hoped that the imaginations of all of us will be stimulated to the point where even better equipment and methods will evolve.

Of primary importance, is an accurate, factual inspection of facilities to determine just what must be done the following year to keep the structures in good condition.

Mobile, fast-moving, flexible gangs, mechanized to the hilt with newly developed specialized equipment, are Mr. Chapman's answer to the need for greater efficiency in B&B work. The article is based on an address delivered before the Bridge & Building convention at Chicago last month.

By W. E. Chapman

Chief engineer—maintenance
Central of Georgia, Savannah, Ga.

This inspection is the basis for requisitions for necessary material, scheduling of forces and application for maintenance allotments for the following year.

The complete reports, together with requisitions for materials, are forwarded to headquarters not later than August 15. These reports are then consolidated as to different sizes and types of material, and schedules of work days, or parts thereof, for each trestle or structure are prepared. In this manner an accurate estimate of labor and material needed for the following year is made.

Requisitions are then submitted to the purchasing department, indicating the dates when the material will be needed, so that necessary material can be procured and distributed on schedule.

Material distribution

The material is assembled at treating plants on schedule, and that for each structure is listed and bundled

separately. When notified, the treating plant loads these bundles of material, each marked prominently with its designated trestle number. In this manner the material for the first trestle reached by the material train (local freight when available; otherwise a work train) will be the top bundle or bundles. Then the next bundle or bundles will be unloaded at the second trestle, etc.

These bundles of material are unloaded at each structure by a crane or hoist, under supervision of the bridge and building supervisor. The material is scheduled to be unloaded at the site of the work in advance of the arrival of the gang that will do the work.

Housing and camp sites

The working forces, housed in mobile, self-contained, highway trailers for maximum flexibility and efficiency, are then brought in. They are provided with a schedule of work to be done, showing how much time will be needed at each structure, and all other necessary information.

Generally the forces are camped at some central location convenient to the work to be done for one week. They are transported by highway to and from the work site. Such flexible, mobile, self-contained outfits are a necessity in order to secure maximum use of such gangs.

If several days' work is lined up for a single structure, the camp site is located at or conveniently near that structure. In some instances

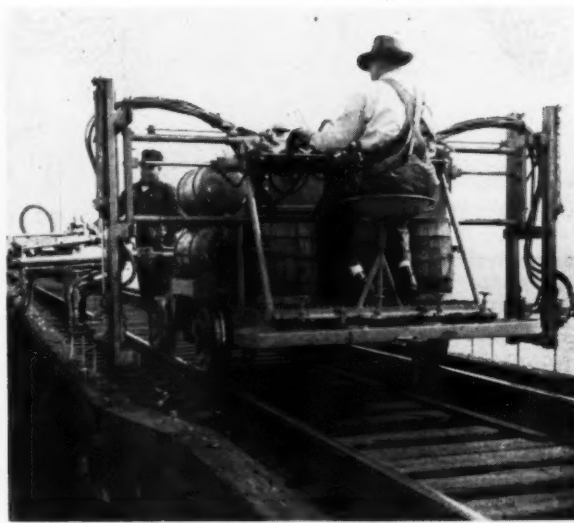
Here's the 'blueprint' in brief . . .

- (1) Continued exploring of the frontiers of the future.
- (2) Factual inspection for annual replacements.
- (3) Mechanical distribution of material.
- (4) Scheduling of labor forces.
- (5) Mobile trailers for moving forces.
- (6) Radio for securing maximum productive time.
- (7) Acquiring and using best equipment.
- (8) Recovering and sawing all suitable old timbers for other uses.

Blueprint for total B&B mechanization



BRIDGE greasing or spraying machine carries a 125-cfm compressor, high-pressure steam-generating unit, water supply, tanks for protective material, spray equipment and staging.



BRIDGE-DECK machine is a mass-production unit for boring holes and driving bolts, spikes and lag screws. It also supplies air for operating saws and impact wrenches.

work may be completed on several trestles or structures during one day, in which event, to effect maximum efficiency, the trailers and camp sites are moved daily.

All trestle work is done under the protection of what is known as a "Y" order, where trains are required to halt at stop boards placed on each side of the trestle, unless they are notified to proceed by the foreman of the gang by radio or in person.

A dual radio set, with a tall antenna, is placed at one end of relatively short trestles or on motor cars on long trestles and the foreman is

provided with a handie-talkie also, in case he is away from the structure or motor car.

In this way, the foreman can keep in touch with approaching trains, "talking" them to the structure, and work right up to the last minute, thus increasing productive time.

The tools are integrated into standard gangs ranging in size from 1 foreman and 3 men to whatever size may be needed. There are several types of gangs and each is equipped with machines especially tailored for the work to be done. The types of gangs and the equip-

ment assigned to them are shown below:

The savings to be derived from mechanization of the type described above will be found in increased productivity. The economy is best illustrated by two bridge painting jobs on which accurate cost records were kept. The first job on this bridge was done several years ago and, at the then prevailing prices, the cost for labor and material came to \$46,200. The last job, done recently by spraying with grease at current prices, cost \$12,960 for labor and material.

Equipment in the 'blueprint'

To achieve the ultimate in efficiency, Mr. Chapman suggests the use of highly specialized gangs, equipped with these machines and devices:

Timber-trestle gangs

1—2½-ton heavy-duty truck with winch in back.

1—Self-propelled, 4-wheel drive, 4-wheel steering hoist with hydraulic controls throughout and equipped with 4 hydraulic outriggers, retractable railroad guide wheels, dual cable hoisting attachment, a telescopic boom to extend 37 ft and rotating through 360-deg, and a 7½-ton winch. Will operate on rail or highway at speed of 20 mph.

1—Hydraulic power set with hydraulic-driven jack group, jack beams and bridge scaffold (for jacking up deck when renewing bent caps), hydraulic drift-bolt puller, hydraulic bolt cutters, hydraulic tool for pulling piles

and braces in line, and hydraulic liner for lining track on the structure.

1—Self-propelled on-track machine for boring holes, driving bolts, spikes and lag screws, and propelling saws and impact wrenches.

Steel bridge gangs

1—2½-ton heavy-duty truck with winch in back.

1—Bridge greasing or painting machine, self-propelled, with retractable guide wheels, equipped to handle spider staging, and having three sets of power sprays for spraying tie coatings, bridge grease or paint.

1—Stone-distributing cart.

1—Set spider staging.

1—Air compressor and air-operated tools necessary in steel work.

The steel bridge gangs grease or paint structures and spray decks in the summer, and make necessary repairs in the winter.

SPRAY OUTFIT for painting buildings. Mounted on 2½-ton truck with jointed aerial boom, the outfit consists of an assembly of Graco Hydra-Spray equipment designed for application of various materials, including roofing rejuvenator and interior and exterior paints. Equipment includes high-pressure air compressor and three Mogul pumps with five spray-gun outlets having spring-retracting reels for hose storage.



RENEWAL of caps and stringers is facilitated by equipment consisting of hydraulically driven jacks specially designed for attaching to piles, jacking beam and pre-fabricated scaffolding. The jacks are operated from a central hydraulic plant.



In addition to the above, there is set up, at some central point, a saw mill for sawing suitable recovered bridge timbers into framing or other timbers. All timbers removed that will do for sawing into framing timbers, etc., are banded and picked up by crane on a local freight or work train and sent to the central point for sawing.

Building paint gangs

A 2½-ton heavy-duty truck, with cab protected from spray, having a hydraulic aerial beam that carries two men up, out, over or down. Actually the beam is composed of two parts with a hinged joint to provide flexibility. Enclosures for two men are provided at the end of the outer beam. The two beams, when not in use, collapse on each other and both go down on the truck. The bottoms of the work enclosures remain horizontal to the ground, regardless of the position of the beams. The truck has hydraulic outriggers to provide stability. The aerial beam has a reach of 48 ft and the truck is equipped

with spray outfits for outside and inside painting and for roof coating. All overhead structures hence can be painted without the use of scaffolding. The truck also has compartment sections carrying other small B&B tools.

Two proposed machines

In addition to the equipment mentioned in the article Mr. Chapman proposes that the "blueprint" include these two machines for B&B work:

1—2½-ton heavy-duty truck, with retractable rail guide wheels, outriggers, rail dogs, compartment sections for tools, hydraulic aerial beam, with grease machine on the bed of the truck, and with winch.

1—2½-ton heavy-duty truck, with retractable rail guide wheels, outriggers, rail dogs, expansible boom to handle heaviest members at 35-ft radius. Truck also to carry power plant and winch.

These two machines, he says, would eliminate at least one power unit each, one set of rail guides, etc.

The Tractair normally is a ground-traveling machine but there are some locations where the unit cannot be driven along the right of way or over farmers' lanes to the job sites. To correct this situation the North Western is equipping its units with retractable flanged-wheel attachments. The result is that these rubber-tired . . .



. . . Compressors now go on-track

● The idea of flanged-wheel attachments for Tractairs got its start on the Chicago & North Western last year while two of the mobile compressors were being used by a rail gang to power two Racor DD4 spike drivers. It was noticed that the Tractairs bounced along the ties as they kept pace with the spike drivers. This led to a discussion of the possibility of equipping the compressor units with flanged-wheel attachments to enable them to travel smoothly along the rails, thereby eliminating much of the wear and tear on the machines. Other advantages of such an arrangement suggested themselves and, after a discussion with Donald J. Hogan, railroad representative for the manufacturer, it was determined that the idea was both feasible and desirable and plans were progressed to develop the attachment.

Since the machines do not travel at more than 20 mph along the rails, the flanged-wheel design was made of simple construction. The front and rear assemblies were made up of standard 14-in pressed-steel wheels mounted on insulated axles with Timken bearings and, in turn, were mounted on a rectangular frame.

The latter is hinged to the Tractair's frame so it can be swung upward and locked while the machine is traveling on the ground, or it can be swung downward to place the wheels on the rails.

When the front flanged wheels are on the rails, they carry the load normally supported by the Tractair's steering wheels. For transferring the load to these flanged wheels, the unit is provided with a Templeton-Kenly screw-type jack, operated by a hand crank.

The Tractair can be made ready for rail travel in about four minutes' time. After the unit is driven to a crossing so its rubber-tired wheels rest on the rails, the jack is used to raise the front end high enough for the front steering wheels to clear the rails and for the front flanged-wheel attachment to be swung downward to rest on the rails. It is then locked with a pin, and the jack is retracted until the weight of the front end is carried by the flanged wheels. The rear flanged-wheel assembly is swung back to engage the rails and acts as a guide only as the load at this end of the machine remains on the large rear rubber tires to provide traction.

When the Tractair is to be removed from the rails, the rear flanged-wheel assembly is unlocked from its down position, swung upward and again locked by a pin and cotter. The screw jack is used to raise the forward end of the machine, the front flanged-wheel assembly is swung upward, the jack is retracted and the load again is carried on the machine's steering wheels. The front flanged-wheel assembly also is locked in the up position by a pin and cotter. The unit may then be driven off the track either at a crossing or from open track.

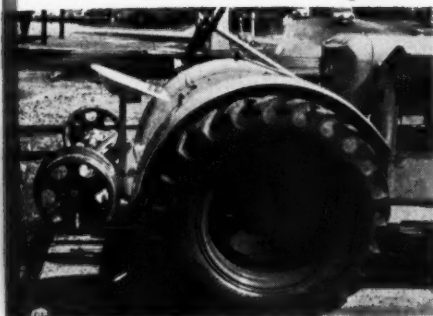
In addition to adapting the machine for rail travel with a rail gang, the flanged-wheel attachments have permitted the units to be used for other purposes at locations not accessible except by rail. For instance, the machine is used to power hand-held tampers at interlocking plants and turnouts and when working on yard and industry tracks.

Some units are used for operating chipping tools and scalers and for paint-spraying bridges which cannot be reached by the machine except by rail. In the past, the Tractairs had to be loaded by several men onto

TO PLACE the Tractair on the track, it is first driven to a crossing and its wheels are positioned over the rails.

FRONT flanged wheels are swung down to the rails and the machine is jacked up to transfer the load to the flanged wheels.

REAR flanged wheels are swung down to the rails. They do not take any weight of the machine and serve as guides only.



It's operated on track in rail-laying gang . . .



MOUNTED on its flanged wheels and moving along with the rail gang, the Tractair furnishes air for powering a Racor DD4 spike driver.

. . . and by signaling forces on various jobs



MACHINE is used by the signal forces for many purposes and flanged-wheel attachments enable them to use it at locations which cannot be reached by road.

push cars and towed to the work sites, unless the distance to the site was short enough so as to permit the machine to run down the track while straddling one rail.

Also, the signal forces have found the Tractair to be particularly useful when changing out poles, tightening messenger wires, pulling cables through underground pipes and ducts, and powering air tools for digging and demolition purposes. In the past when farmers' lanes were too wet and where the Tractairs could not be driven, this arduous work had to be done by hand. The flanged-wheel attachments now enable the Tractairs to be available for all work locations.

The North Western has 25 Model 125 Tractairs, which are self-propelled, rubber-wheel-mounted air compressors manufactured by the LeRoi-Westinghouse Company, Milwaukee, Wis. Of this number, 14 were purchased this year equipped with flanged-wheel attachments and it is planned to so equip most of the earlier machines. By so doing, the road knows that air can be taken to wherever it may be needed on the railroad.

FROM PICKUP

TO

DEPOSIT



DITCH-CLEANING operation in Feather River Canyon is largely a matter of removing accumulated material from ditch and depositing it on opposite side of track. In these two views a Gradall, equipped with flanged guide wheels, is engaged in this task.

▶▶▶ How special equipment is used on the WP for

Ditch cleaning in

Machines used by Western Pacific in 120-mile Feather River canyon include rubber-tired excavating units with flanged guide wheels

● The Western Pacific has problems in the Feather River Canyon in northern California. For nearly 120 miles the railroad's main line winds through this deep, tortuous gorge, mostly in side-hill cuts. Slides, minor and major, have been a frequent occurrence. And deposition of material in the side ditches due to erosion of the slopes is a continuing process.

Keeping the side ditches clear of the accumulations of material coming down from above is a major problem. This is not only necessary in the interest of good drainage and visibility but also to permit the operation of snow plows without the hazard of striking rocks or dirt accumulations along the tracks. So large are these accumulations that the work of removing them is sometimes referred to by the men as a "daylighting" operation.

Maneuverability needed

To a great extent the work of removing the deposits is simply a matter of picking the material up from the uphill side and depositing it on the downhill side where, if necessary, it may be spread or pushed down the slope by suitable equipment. Years of experience with this problem led to the conclusion, on the part of the rail-



EARLIER MACHINE developed for use in canyon consisted of shovel mounted on rubber-tired carriage fitted with flanged guide wheels.

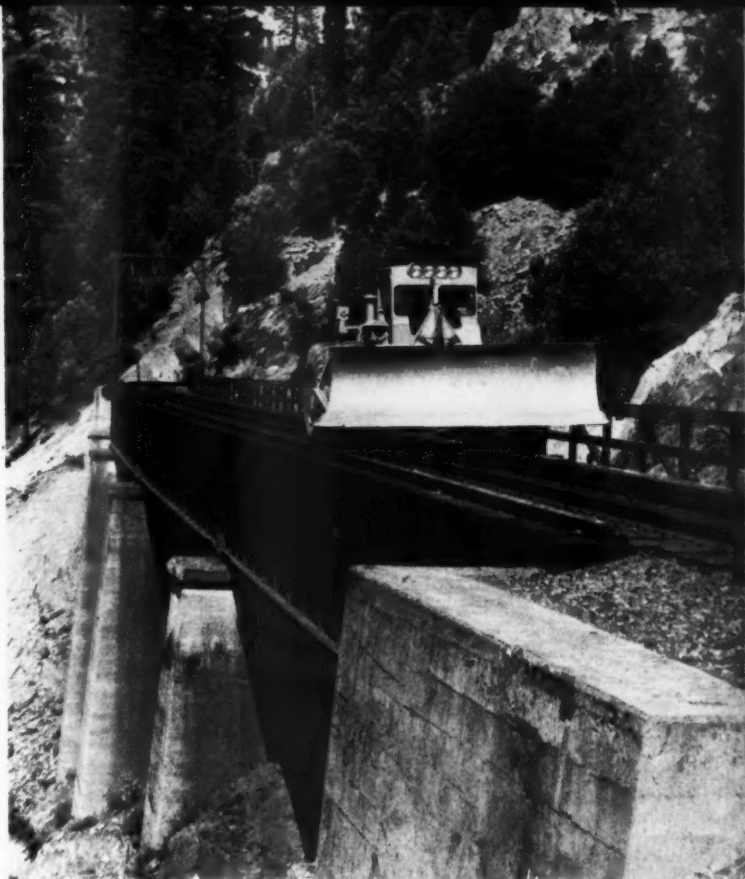


TOURNADOZER, (above) working in Feather River canyon, spreads material removed from ditch on opposite side of track. When necessary to move from one location to another in canyon it takes to the rails.

Grading equipment on the WP

Complete list of grading equipment used in the Feather River canyon and elsewhere on the Western Pacific:

- | | |
|---|--|
| 1—"Roadmaster" type Jordan spreader | 2—Rubber-tired Insley shovels, with Maxi underframes and flanged rear wheel assembly |
| 2—Type A Jordan spreaders | 2—Gradalls with front and rear flanged guide wheels |
| 2—Old type Jordan spreaders | 1—Koehring dumptor |
| 1—Pettibone-Mulliken front end loader | 6—Dump trucks of varying capacities |
| 2—Rubber-tired Tournau dozers | 2—D-4 Caterpillar dozers |
| 3—Crawler shovels (one Bucyrus-Erie and two Manitowocs) | 6—D-6 Caterpillar dozers |
| | 2—D-7 Caterpillar dozers |



ing in long canyon

road's engineering officers, that the situation could best be handled by equipment that could operate both on and off the track.

In the meantime the railroad had acquired a Tornadozer (a four-wheel, rubber-tired bulldozer) for spreading and related operations along the tracks. After observing the maneuverability of this unit when crossing tracks or operating on them it was decided to undertake the development of suitable rubber-tired equipment for the ditch-cleaning operations required in the Feather River Canyon.

The first machine developed for this purpose consisted of a $\frac{3}{4}$ -yd Unit shovel mounted on a rubber-tired carrier developed by the Maxi Corporation. The wheels of the carrier were placed far enough apart to straddle the track rails. Later a pair of flanged guide wheels was mounted on the rear of the carriage for use when the machine was operating on the track. Still later the carrier on this unit was reconstructed by the Insley Manufacturing Corporation and the shovel was replaced by one of its own manufacture. Eventually a second unit, similar to the first and also incorporating flanged guide wheels, was obtained from Insley which, in the meantime, had bought out the Maxi Corporation.

Railroad Gradall acquired

Experience with these machines in the Feather River Canyon convinced the railroad that it was on the right track in its efforts to develop equipment adaptable to the

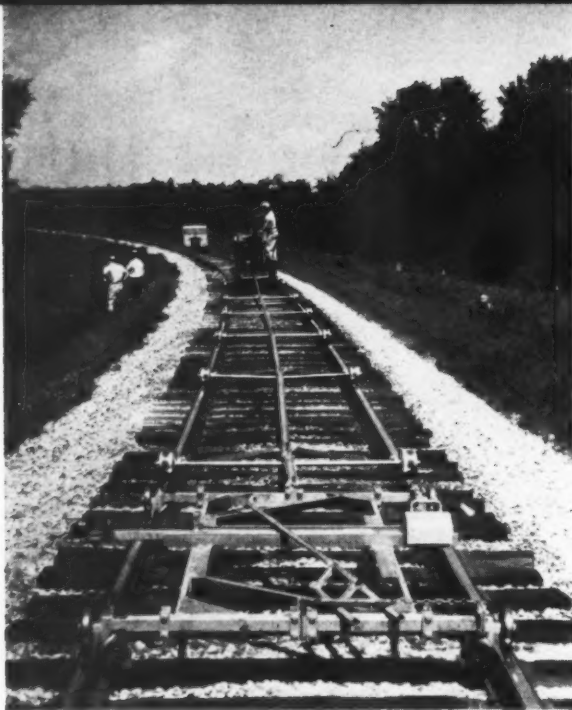
particular conditions existing there. In the search for additional equipment, Frank Woolford, chief engineer of the WP, became interested in the Warner & Swasey Gradall, but wanted it equipped with flanged guide wheels. His interest in the matter was a factor in the development of the Railroad Gradall which has flanged guide wheels front and rear. One of the first such machines to be produced was acquired by the WP, and recently a second unit was obtained.

Common practice, working in the Feather River Canyon, is for one of the rubber-tired units with flanged wheels and a Tornadozer to work together as a team. Personnel of each outfit consists of a foreman, two machine operators, and two scalers. The latter, working ahead of the outfit, scale loose rocks and debris from the hillside so that they will fall into the side ditch and be removed along with the material that has previously accumulated.

The practice, where these outfits are working, is for them to have the use of the track until it is released by the foreman. Portable telephones are used to maintain contact with the dispatcher. Personnel of the outfits is housed in camp cars.

Uses other equipment, too

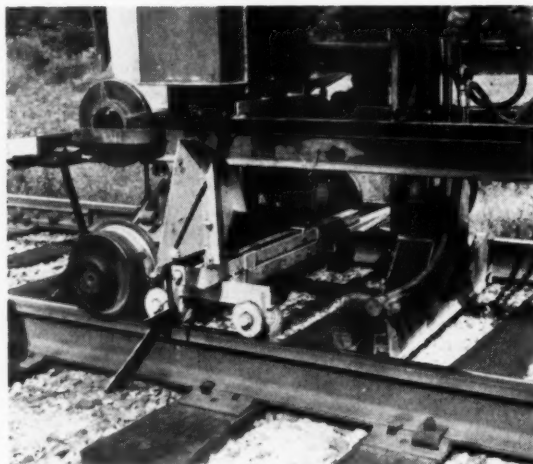
Other grading equipment that the railroad reports it is using to good advantage in the canyon includes several Caterpillar bulldozers, one Koehring Dumptor, three crawler shovels—two Manitowocs and a Bucyrus-Erie—and a number of heavy-duty dump trucks. All of this equipment, including the rubber-tired units with flanged wheels, is, of course, available for use elsewhere on the railroad for ditching or other material-handling jobs.



'Wire' Lining . . .

...120-ft length 'sights'
for power track liner

From rear buggy the wire runs through target at liner . . .



AT LINER the wire passes through delicately balanced slotted member (arrow) that actuates pointer on scale.

ON REAR BUGGY the wire extends around sheave at extreme right and winds on reel. Pull on wire is 80 lb.

Pointer device
under liner . . .

... looks like
this to operator



● A track-lining machine that uses a length of wire as the sighting agency has now been developed, and has seen experimental service on a number of roads. Reports are that it has proved successful in lining curves as well as tangent track.

The machine, a development of the Nordberg Manufacturing Company, is actually an assembly based on two existing machines or devices. The part that throws the track to the indicated alignment is the Nordberg Trakliner. The part that does the "sighting" is an adaptation of a principle first incorporated in the Nordberg Trak-Surfacers,* which utilizes tightly stretched lengths of wire, mounted on a moving assembly, to indicate the amount of raise at jacking points when surfacing track out of face. The idea of using wires for raising and lining was originated by W. C. McCormick, general roadmaster on the Seaboard Air Line.

The basic principle

The assembly of equipment for lining track is known informally as the Line Indicator, although actually it does a complete job of sighting and lining the track. Here's the basic idea:

A single strand of wire 120 ft long is used. It is so mounted on a moving assembly that it is carried along in a position about 8 in outside the gage side of one rail and about the same distance above the running surface. At a point 20 ft ahead of the rear mounting the wire passes through an indicator or target mounted on a carriage placed underneath the Trakliner. If the track at the machine is out of line with reference to the alignment as established by the wire the direction and amount of deviation is indicated by a pointer on the target. The track is then shifted until the pointer reads zero.

The purpose of placing the indicator 20 ft from the rear

* RT&S, March, 1957, page 68

of the wire and 100 ft from the front end is to minimize the effect of any local irregularity in the track at the forward mounting. This positioning causes only one-sixth of any such irregularity to be reflected by the pointer. Actually the degree of accuracy is even greater because the effect of irregularities is reduced further by the fact that the wire mountings, both forward and rear, consist of buggies or carriages with wheel bases of 8 ft, with the wire mounting centered in this wheel base.

Construction of end buggies

The end buggies of the assembly are similar. They each consist of a framework of aluminum members mounted on four plain running wheels that operate on the top surfaces of the rails. In addition, at the location of each of the running wheels there is an inclined guide wheel that bears against the gage side of the rail. These act as flanges for the plain wheels and also assure that the "sighting" wire will be accurately referenced from whichever rail is used as the line rail. To make this possible the inclined guide wheels have spring mountings which cause them to bear firmly against the gage sides of the rails. The construction is such that the mountings of the guide wheels on the line side can be locked in a fixed position with respect to the frame. Variations in the gage are then absorbed by the mountings of the guide wheels on the other side.

At both front and rear buggies the wire passes around a horizontal sheave mounted at the end of a cross member that can be moved in and out by means of a screw-type adjustment and locked in any position. At the forward carriage the wire, after passing around the sheave, is anchored to the carriage frame. At the rear carriage the wire is wound on a reel fitted with a hand crank. The reel is so mounted on a hinged bracket that its weight exerts a pull of 80 lb on the wire, keeping it taut. When not in use the entire length of wire is wound on this reel. The

wire used is No. 13 steel music wire with a tin coating to prevent rusting.

The front buggy is maintained at the proper distance from the Trakliner by coupled lengths of aluminum tubing, each mounted at one end on a pair of flanged wheels with an aluminum frame. Each length of tubing and its pair of wheels can be easily handled to and from the track by one man, as can the front and rear buggies. The rear buggy is coupled to the Trakliner by a single length of aluminum tubing. The tubing is coupled to the Trakliner, front and rear, by removable brackets.

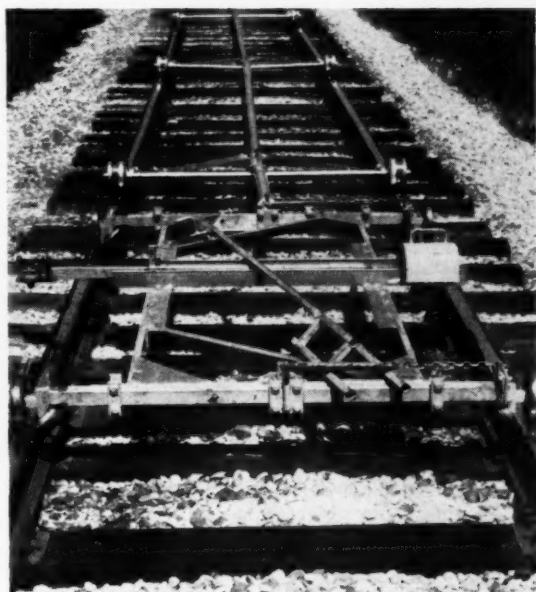
Pointer device at liner

The pointer mechanism at the Trakliner is mounted on a four-wheel carriage with the same arrangement of running and inclined guide wheels as the front and rear buggies, but with a much shorter wheel base so that it can operate on the rails underneath the lining machine. The pointer carriage is attached to the Trakliner by a single member that hooks over the rear axle of the track lining machine.

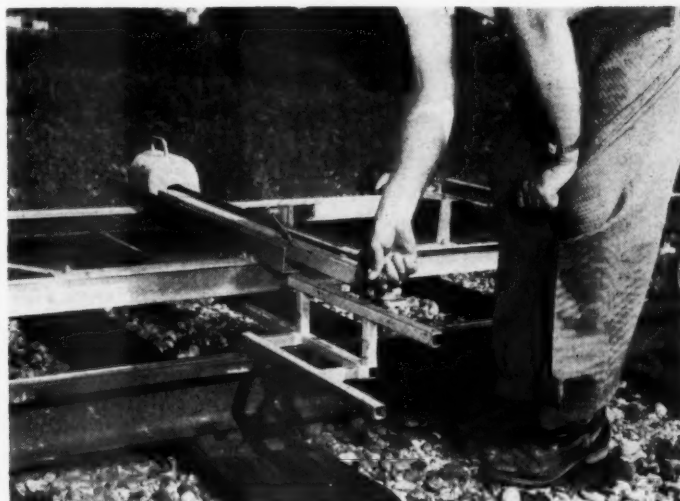
When the "line indicator" is in operation the wire is threaded through a sensitively balanced slotted member on the pointer carriage. Sidewise movements of the slotted member caused by the wire are reflected by the pointer on a graduated circular scale. The pointer mechanism is mounted at the end of a cross member that can be moved in and out by the same type of screw adjustment that is used on the front and rear buggies. This movement is indicated by a horizontal scale on the carriage which is graduated in tenths of an inch. The calibration is such that each division on the pointer arc is equal to a division on the horizontal scale with a multiplying factor of 3 to 1.

How it works on curves

... to connection on front buggy



RAILWAY TRACK and STRUCTURES



ADJUSTING SCREW is used to move wire in or out as desired with template as guide. Wire may be referenced to either rail, whichever is line rail.

WIRE passes around sheave at left and is anchored to frame. Object at right is removable weight for holding buggy firmly to track.

Wire lining . . .



WHEN LINING to an obstruction the connecting tubular members are removed and the buggies are anchored; machine then moves along wire right up to forward buggy.

Before starting to line track with the Line Indicator it is necessary to adjust the wire so it is exactly the same distance from the gage side of the line rail at the front and rear buggies and at the pointer carriage.

These adjustments are made with the aid of a template built of square aluminum tubing, which is so constructed that the wire may be referenced to either the near rail or the far rail, whichever is the line rail. The template has two horizontal members to each of which is fastened a scale graduated in tenths of an inch. With the template

in position on the track one of the scales is directly under the wire which is then moved by means of the screw adjustment to give the desired reading on the scale.

Lining tangent track

When the necessary adjustments have been made at the front and rear buggies and at the pointer, the Line Indicator is ready to line track. On tangent track this is done by stopping the Trakliner at all joints, centers and quarters. At each point the track is lined as necessary to bring the pointer to zero.

In lining more than 40 miles of tangent track it is reported that the maximum throw was $1\frac{1}{4}$ in. On the average, it is said, the machine will line a rail length in 2 min.

When using the Line Indicator situations may be encountered, such as at turnouts or railroad crossings, where it may not be possible to line the track all the way to the obstruction by using the equipment in the usual manner. This problem is solved on tangents simply by anchoring the forward buggy at the point of the obstruction and the rear buggy 120 ft back, and then removing the intervening tubular members. The Trakliner can then line the track by moving along the wire right up to the forward buggy. To anchor the buggies for this operation metal "spears" are used which are braced in the ballast or against a tie.

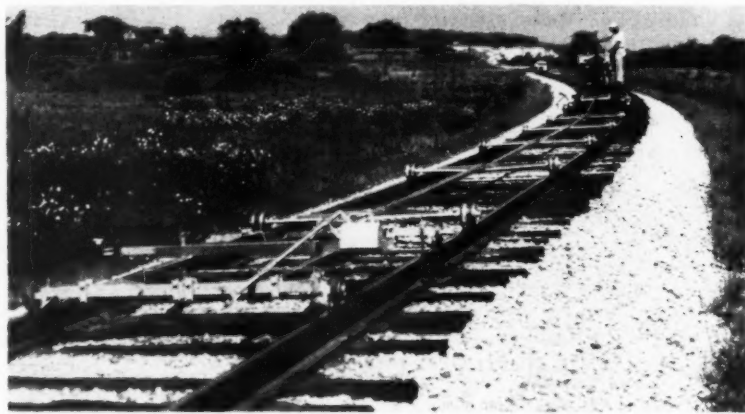
How many men are needed? Only the Trakliner operator and one man on the ground to make necessary adjustments in the pointer scale and to help move the buggies and sections to and from the track.

This is how device is used when lining curves

For lining curves with the "line indicator" a method has been worked out that was giving satisfactory results when the machine was recently seen under-going tests on the Soo Line. This is how it was being done:

The machine is first moved around the curve. On the spirals the Trakliner is stopped at intervals a rail-length apart to permit the "ordinate" to be read and recorded. The ordinates are obtained by using the adjusting screw to bring the pointer to zero on the circular scale, after which the ordinate is read directly from the horizontal scale.

After the ordinates have been obtained for both spirals they are adjusted as necessary to smooth out irregularities. In making these adjustments care is taken that the sum of the differences between the original ordinates and the desired ordinates is zero. The Line Indicator then moves around the spirals and the track is thrown at the joints, Centers and quarters to give the desired ordinates. This is done by setting the horizontal scale to indicate the desired



TO LINE SPIRALS the "ordinates" are measured and adjusted as necessary.

ordinate and then throwing the track until the pointer reads zero on the circular scale.

On the body of the curve it is not necessary to measure individual ordinates. At some representative point the machine is stopped and the adjusting screw is turned until the pointer indicates zero. The machine then moves on around the curve and the fluctuations of the pointer are ob-

served. If the results indicate that the proper setting to give the average ordinate has been obtained it is used in lining the body of the curve. Otherwise the reading is adjusted as necessary.

In one instance it is reported that a 1-deg curve 4900 ft long was lined by this method in 4 hr actual working time. In this case the track had been recently ballasted.



USS Quality Trackwork reduced maintenance at this crossing

IN 1953, this nest of four, 3-rail heat-treated crossings was installed in Ohio, by the Chesapeake and Ohio Railway Company. There has been a marked reduction in maintenance for this location since the time of installation

—despite the fact that the crossings support vast tonnages and withstand the daily pounding of heavy-duty freight and high-speed passenger traffic.

This performance is evidence of United States Steel's activity in the development of heat-treated trackwork. The end-result of this development has been a rail with increased hardness and resistance to wear. The *production* methods of United States Steel are carefully controlled in order to maintain standards which traditionally have meant superior qualities for trackwork.

The extra care and effort that goes into the manufacture of switches, frogs and special track layouts make USS Quality Trackwork the finest you can buy. For complete data, photographs, and diagrams on the full line of USS Trackwork products, send for a free catalog, "USS TRACKWORK." Address your request to United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa. Contact our engineers at any time for assistance.



TRACKWORK

United States Steel Corporation, Pittsburgh • Columbia-Geneva Steel Division, San Francisco
Tennessee Coal & Iron Division, Fairfield, Ala. • United States Steel Export Company, New York

U N I T E D S T A T E S S T E E L



ONE OF FIVE trainloads, this 56-car shipment of Monotube fluted foundation piling is destined for the Philippines to fill a \$3-million order for dock improvement at Manila.

New line construction in Canada . . .



MUCK and more muck—such were the conditions encountered in the construction of the Canadian National's new Bartibog subdivision, recently completed to serve the Heath steel mines in the New Brunswick interior. Track materials, . . .



News briefs in pictures . . .



. . . UNLOADED on the ground, were loaded on flatbed trucks by means of an electro-magnet and then distributed along the roadway in advance of the rail gang.

NEW INSPECTION CAR, an A34 Hy-Rail built by Fairmont Railway Motors, Inc., is inspected by C. G. Rodgers, vice-president and general manager, and Herbert Huffman, engineer in charge of maintenance, as it was received recently by the Chicago & Eastern Illinois.



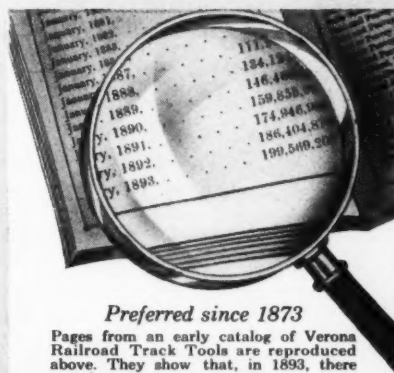
VERONA SPECIAL VERONALLOY NUT LOCKS...

Maintain great bolt tension through a wide reactive range. This is made possible by the non-fatiguing characteristic of Veronalloy Steel.

Keep rail joint assemblies in proper condition by maintaining high bolt tension.

Reduce angle bar wear and rail batter. Every Veronalloy Nut Lock is heat-treated and tempered, and receives a full compression test before shipment.

Saves track maintenance expense by eliminating necessity for periodic tightening of bolts, and joint tamping.



Preferred since 1873

Pages from an early catalog of Verona Railroad Track Tools are reproduced above. They show that, in 1893, there were in use—

**199,569,202
VERONA NUT LOCKS!**



Woodings-Verona
TOOL WORKS

Main Office and Plant: **VERONA, PA.** • Sales Offices: **CHICAGO, ST. LOUIS**

NOW... 28 NORDBERG "MECHANICAL MUSCLES" THAT MEET YOUR SPECIFIC TRACK MAINTENANCE REQUIREMENTS

THESE MACHINES TYPIFY NORDBERG PROGRESS...

The following machines, among the more recent Nordberg developments, are typical of the machines that have become the standard for efficient maintenance operations on the nation's railroads.

- 1. TRAKLINER®** . . . The track lining machine with two point rail contact for extremely accurate, kink-free line. Operated by one man and self-propelled, the Trakliner is faster and more accurate than any other lining methods.
- 2. GANG TAMPER** . . . 16-point tamping for raising or spot surfacing, this one-man machine tamps by impact, compression and vibration. Assures uniform quality tamping of every tie, every time, in any ballast.
- 3. SELF-PROPELLED SPIKE PULLER** . . . Incorporating all the proved advantages of the regular Nordberg Mechanical Spike Puller, the new Self-Propelled unit now becomes a two-man machine that boosts man-hour production 50%.
- 4. BALLAST ROUTER** . . . Easily and quickly removes high crib ballast, improves track drainage, and simplifies application of rail anchors.
- 5. TRAK-SURFACER — TAMPING POWER JACK TEAM** . . . An entirely new method of producing improved profile and surface, the Trak-Surfacer employs a tightly drawn wire as a reference line for raising track. A Nordberg Tamping Power Jack, used as the central unit, raises the track to the wire, tamps the tie to hold the raise and provides propulsion power for itself and the entire Trak-Surfacer.
- 6. SELF-PROPELLED ADZER** . . . With self-propulsion, the well-known Nordberg Adzing Machine now becomes a one-man machine with greater power, to speed tie adzing.

From the time the first Nordberg Track Maintenance Machine was introduced over a quarter-century ago to the present day . . . America's leading railroads have made Nordberg "Mechanical Muscles" the standard by which modern maintenance machinery is compared.

Important, too, is the fact that all of the twenty-eight Nordberg "Mechanical Muscles" have been designed, built, tested and proved with the cooperation of railroad men.

Our policy is a continuing research and development program, to serve you better by producing new machines to mechanize every possible track maintenance operation.

To stretch your maintenance dollars, it will pay you to make sure you have all the facts about the full line of modern, money-saving Nordberg track maintenance machinery.

Write for literature on any or all of these Nordberg "Mechanical Muscles."

Cost-Cutting Nordberg "Mechanical Muscles" include:

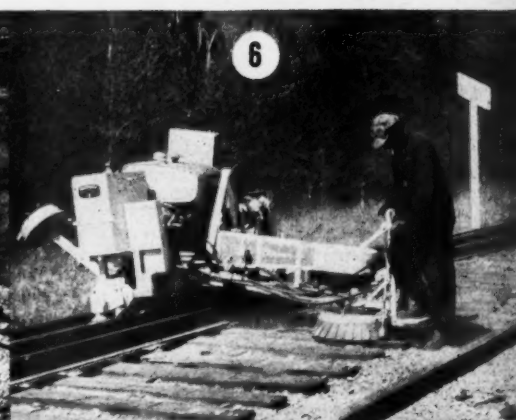
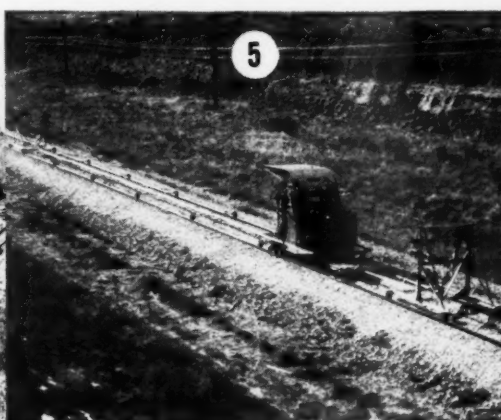
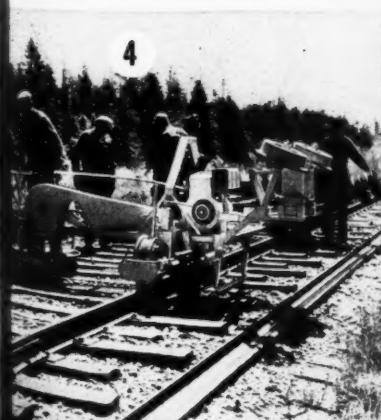
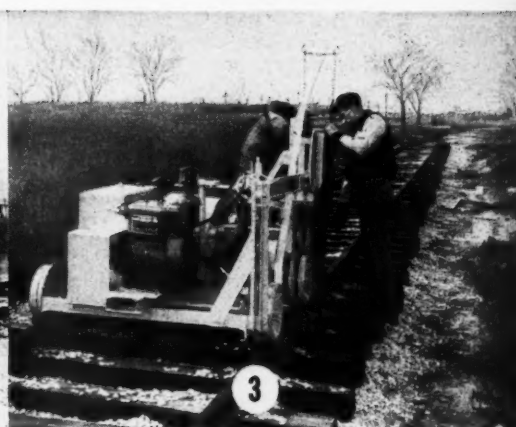
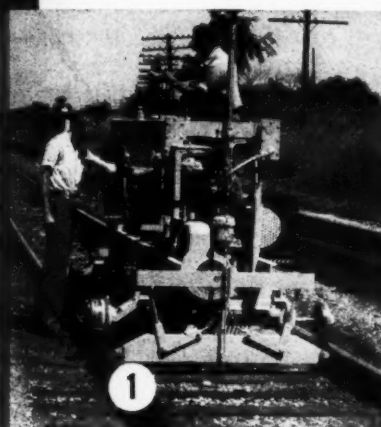
BALLAST ROUTER BANTAM RAIL SLOTTER CRIBEX® BALLASTEX® SCREENEX® SPIKE HAMMER TIE DRILL HYDRAULIC and MECHANICAL SPIKE PULLERS POWER JACK POWER WRENCH RAIL DRILL RAIL GRINDERS SURF-RAIL® GRINDER TIE-KAT® TRAKLINER® TRACKSHIFTER DUN-RITE® GAGING MACHINE and BRONCO DSL® YARD CLEANER GANDY® —TIE PULLER and INSERTER GANG TAMPER SELF-PROPELLED ADZER SELF-PROPELLED SPIKE PULLER TAMPING POWER JACK TRAK-SURFACER.

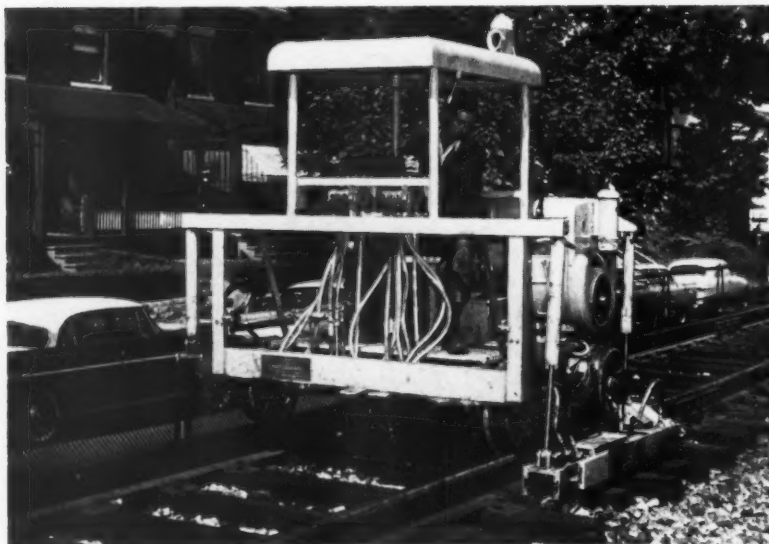
NORDBERG MFG. CO.
Milwaukee, Wisconsin



© 1957, Nordberg Mfg. Co.

R857





R.M.C. TIE SPACER (left) is a self-contained machine operated by one man. Close-up view, above, shows shifting device which clamps ties.

Both ends shifted by . . .

Tie-spacing machine

IMPROPER tie spacing and slewed-tie conditions may now be corrected by a new machine designated the R.M.C. Tie Spacer.

A set of hydraulic shifting devices, one on each side, forms the basis of operation. The machine is positioned over the tie and either or both shifting devices are lowered

and automatically clamp to the rail. The tie is moved the desired distance by hydraulic pressure applied to its sides and resisted by the rail clamps, thereby transmitting the pressure directly to the rail and not to the machine and permitting a relatively light-weight unit.

Because either or both shifting devices may be used, it is possible for the tie spacer to move a tie in either direction parallel with the rail by engaging both ends simultaneously, or to move one end forward

while pulling the other backward. Also, one end may be moved independently forward or backward to correct a slewed-tie condition.

An integral hydraulic turntable permits the operator to raise the machine for reversing its direction on the track or for removing it onto a demountable set-off. The machine is self-propelled and travels at a speed of 20 to 25 mph.. *Railway Maintenance Corporation, Dept. RTS, Box 1888 Pittsburgh 30, Pa.*

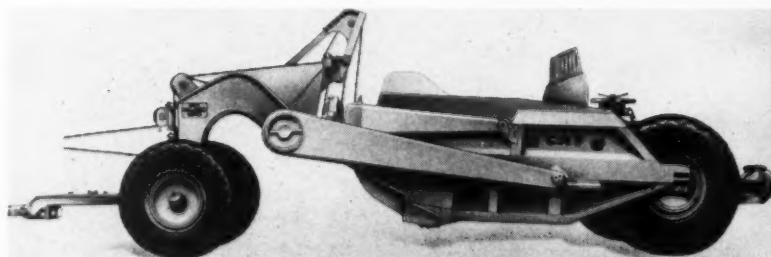
Light weight featured in . . .

6-hp chain saws

CALLED the "Power Twins," two new chain saws having 6-hp engines have been made available which are said to be the lightest 6-hp chain saws available. One, designated E2-6, is a direct-drive, 19-lb unit which it is claimed will cut through 8-in oak in 4 sec, 18-in pine in 12 sec, and will bring down trees up to 5 ft in diameter.

The other, designated 6-22, is a gear-drive 22-lb unit which is said to be capable of cutting through 20-in trees in 18 sec and of bringing down trees up to 7 ft in diameter. One of the important features claimed for this unit is a complete set of attachments that are available for quick-changing from a straight-blade chain saw to a brush cutter, to a plunge-cut bow-saw, and to a clearing tool.

Both units are equipped with diaphragm carburetors to permit cutting in any position, without adjustments or loss of power. Their engines are of the high-compression short-stroke design which is said to assure less downtime and low maintenance. *Homelite, Dept. RTS, Port Chester, N. Y.*



Higher production with . . .

Small lowbowl scraper

LOWBOWL scraper design, long a feature of Caterpillar Tractor Company's larger scrapers, has been made available for use with the Cat D7 tractor. Designated the No. 435 Scraper, the new four-wheel unit replaces the Caterpillar No. 70 and has a struck capacity of 13 cu yd and a heaped capacity of 18 cu yd. The low silhouette of the No. 435 allows material to enter the scraper with a minimum of lifting effort and material-to-material friction.

No. 435 is designed with an injector of increased height, and greater apron

capacity. Rock guards have been provided as standard to afford protection against fouling of the draft arms due to rock spillage. The new model has greater stability than its predecessor model, due to the lowering of the loaded unit's center of gravity. Additionally, the wider base of the scraper increases the width of cut to 9 ft 4 in as compared with the previous model's 8 ft 6 in.

From the standpoint of versatility, the manufacturer states that the No. 435 is large enough to be economically used with the Caterpillar D8 tractor as well as being available for use with the D6 tractor. *Caterpillar Tractor Company, Dept. RTS, Peoria, Ill.*

ORTON

the most **POWERFUL**
name in CRANES...
and **PILE DRIVERS**

All ORTON cranes operate on **STRAIGHT DIESEL POWER**. This enables ORTON to give a 10-year guarantee on travel gears without limitation due to accident, derailment, misuse or other cause. Idles at 600 rpm instead of 1800; reduces engine wear immensely; reduces fuel consumption to about $\frac{3}{4}$ of diesel electric operation. No danger of setting fire to combustible material on road beds. Moisture—even flood waters, won't immobilize an ORTON straight diesel machine.

ORTON CRANE & SHOVEL CO., 608 S. Dearborn St., Chicago 5, Ill.



An ORTON Pile Driver built to specification hoists, rotates, travels and operates the pile-driver leads, powered by a GM diesel engine with fluid torque converter. Self propelled at 24 mph on level track. Easily negotiates 5% grade; pulls 10 loaded cars weighing 70 tons on level—or 1 such car on 4% grade. Hydraulic pumps and auger attachments. Ask for catalog No. 90.



An ORTON Combination PILE DRIVER, 160-ton DIESEL WRECKER and BRIDGE DERRICK built to specification. Pendent pile driver leads permit batter in both directions. Can be equipped for use with air or diesel-operated hammer. Above: in use as a pile driver; large photo at left: same machine as a wrecker. Ask for catalog No. 89.

What's the answer?

To be answered in January

Do you have an answer to any of the questions listed below? If so, send it in. Payment—based upon substance and length—will be made for each published answer. If you'd prefer that your name be withheld, we'll gladly comply.

DEADLINE November 31

- ▶ 1. With today's modern power equipment, what factors, if any, rule out the feasibility of laying rail and renewing ties during the winter in the northern regions of the country? Explain.
- ▶ 2. What methods are most applicable to the repair of failing stone and concrete arch culverts on branch lines where economy in maintenance is a prime consideration? Explain.
- ▶ 3. What are the advantages, if any, in providing hot lunches for work gangs out on the line? Should the food be delivered to the work site? If so, what special equipment, if any, is needed to keep it hot?
- ▶ 4. What are the advantages, if any, in the use of concrete-block construction for railway buildings? Disadvantages? For what types of structures is this construction suitable? Explain.
- ▶ 5. How can the waste of oil be prevented when fueling locomotives? Is there more or less waste when the valve is at the nozzle end or the mast end of the delivery hose? Explain.

Send answers to:

What's the Answer Editor
Railway Track & Structures
79 West Monroe Street
Chicago 3, Illinois

Do you have a question you'd like to have answered in these columns? If so, please send it in.

Wrought iron spacer bars

What are the advantages, if any, in using wrought iron tie-spacer bars on bridge decks in place of outside wood guard rails? Disadvantages? Explain.

Perform duties well

By JOSEPH A. JORLETT
 Engineer - Structures
 Pennsylvania
 Baltimore, Md.

On an open-floor bridge, ties must be held securely in their designed spacing to assure correct distribution of wheel loads to the bearing structure, assist in the maintenance of the rail alignment and, in the case of steel members having top cover plates, preserve even bearing where short cover plates end.

The wrought iron spacer bar which I have seen in service now for about ten years performs these duties well. It is made of 3-in by $\frac{5}{8}$ -in stock and laid flat in lengths of 19 ft 11 $\frac{3}{4}$ in. Holes $\frac{3}{4}$ -in in diameter are bored on 4-in centers, the first being 1 $\frac{7}{8}$ in in from the end of the bar, along the entire length of the bar. The oak bridge ties are 10 in wide and are placed on 16-in centers so that the selected hole spacing in the bars rules out the need for making a hole punching diagram for each bar. The bars are laid continuously, end to end, and are fastened securely to each tie with an 11/16-in by 6-in galvanized drive spike with an integral washer head.

On the track structure, the bars are spaced so that the near edge is a minimum of 13 in from the gage side of the running rail. This is the same distance which was specified when we used 6-in by 8-in timber guard spacers. The inner guard rail is spaced so that the gap between the gage side of the running rail and the near face of the guard rail is 11 in. This meets the recommendation of Committee 7, AREA, that guard timbers and the inner guard rails should be spaced so that a derailed truck will strike the inner guard rail and not the timber.

Timber spacers are usually fur-

nished from treated pine or fir. They are vulnerable to fire damage, particularly after a few years of service when fraying fibers, numerous checks, splits, and mechanical damage provide good spots for fires to start. Due to shrinkage of the fibers and wood cells, the fastening devices loosen, and it is not unusual to see them projecting above the top of the spacing timbers. Formerly, it was our practice to dap the timbers which came in 14-ft or 17-ft lengths. The daps were 1 in. in depth and fitted over each tie. A $\frac{3}{4}$ -in by 11-in lag screw was placed in a pre-bored hole in every other tie. This sometimes required the making of a framing detail. Later the daps were omitted, as it was found that the 6-in projection between the ties either sheared off in service or was broken off before application in enough places to destroy the usefulness of the arrangement. Those timbers were then lagged to each tie.

Although the disappearance of the steam engine has eliminated fires caused by hot coals on open-floor structures, fires still originate from various causes with their inception in the guard timbers. Many roads provide metal coverings over wood decks, cover the timber with an asphaltic or bituminous material in which sand or other mineral aggregates are embedded, treat timbers with a fire-retardant salt, or paint them with a fire-resistant material. Spacing bars eliminate a considerable area of such protection when the size of a 3-in by $\frac{5}{8}$ -in bar is compared with a 6-in by 8-in timber.

Other advantages of the wrought iron bar are the long life expectancy, the high resistance to brine corrosion and the resistance to other atmospheric corrosive agents. In some

(Continued on page 62)



TIME IS THE MEASURE OF ALL WOOD PRESERVATION

In business—as in pleasure—it's important to safeguard your investment in wood. Service records show that AMCRECO pressure treatment still provides the longest and most practical protection.

AMERICAN CREOSOTING CORPORATION LOUISVILLE 2, KENTUCKY
SUBSIDIARY OF UNION BAG-CAMP PAPER CORPORATION



**it takes railroad men
to make railroad equipment
that railroad men want!**

Clothes may make the man . . . but only experience ever made railroad men. The experience of Morrison-men is typified in the development and manufacture of Morrison CAMPCARS.

Morrison CAMPCARS reflect this technical know-how developed in over thirty years of servicing railroads and building vital railroad equipment. Today, the Morrison CAMPCAR reflects this experience in its quality construction that is so vital to today's and tomorrow's high operating costs.

CAMPCARS solve the problem of moving, housing, and sustaining M/W Crews at minimum cost. CAMPCARS house eight men for less than the outmoded cost for one, in clean, modern commodious off-track housing that can operate independent of utilities and servicing for over 10 days at a time.

Consider what this means in reduced costs, in improved worker-morale, in encouraging more productive labor. For complete details and important facts, write for our new CAMPCARS brochure.

©By Subsidiary International Railway Car Co.

MORRISON RAILWAY SUPPLY CORP. / 1437 Bailey Avenue, Buffalo 12, N. Y.

**To reduce
maintenance costs**

-- install

NATIONAL

RAILWAY SPRING WASHERS

KEEP BOLTS TIGHT

—longer!

The reserve power that is built into the NATIONAL line of powerful, railway spring washers keeps rails and joints tight over long periods under the most gruelling pounding. They absorb shocks, protect rail ends and joints, maintain constant bolt tensions . . . reduce maintenance costs.



A COMPLETE LINE
OF RAILWAY SPRING WASHERS

The NATIONAL LOCK WASHER COMPANY

Serving Industry Since 1886 — NEWARK 5, NEW JERSEY, U. S. A.

What's the answer? (cont'd)

instances where circumstances require the abandonment of open-floor structures, the spacing bars are readily removed by removal of the drive spikes or by burning off the heads with no damage to the bars. They can be stored or used over again with no loss of material. The same applies when ties are renewed.

Most of the advantages named

above for wrought iron spacers are, conversely, the disadvantages to be found in timber guard spacers. The latter are, however, lower in first cost, running about 75 per cent of the cost of spacer bars as delivered to the job site. Application cost of the timber is slightly higher than the bars. If one reuse is assured, it is more economical to use the wrought iron spacer bar, without considering any of the intangible costs that may occur if timber spacers are used.

In some high-speed territory it

has been recommended that clamping plates or timber connectors be embedded between timbers and the ties. Similar devices can readily be used with the spacing bar.

Although not condoned as a standard practice, one track supervisor, when placing the spacing bars on the high side of a sharp curve of a slow speed track on the end of a bridge, butted the bars against the edges of the tie plates before spiking the bars securely to each tie. He claims his wide gage problem was eliminated.

Field welds for continuous rail?

When laying continuous welded rail what are the relative advantages and disadvantages of field welds and conventional joints as a means of joining the long lengths? Where field welds are used, how should they be made? Explain.

Field welds impractical

By L. V. JOHNSON
Chief Engineer
Soo Line
Minneapolis, Minn.

We discontinued the practice of making field welds in connection with the installation of continuous welded rail four years ago. The cost of field welds was excessive as compared with the cost of shop welds, they were more subject to failure than the shop welds, and it was impractical to Magnaflux the field welds as was being done with all shop welds. Over 95 per cent of the rail joints were being eliminated by welding rail into 856-ft lengths at the welding shop. The elimination of the remaining 5 per cent of the joints does not, in my opinion, justify the expense of making field welds where results are not subject to close control as they are at the shop.

Bolted joints satisfactory

By H. M. WILLIAMSON
Engineer Maintenance of Way and Structures
Southern Pacific
San Francisco

We have not used field welds in connection with our welded rail operation, nor do we contemplate using them. We have welded rail in 78, 117, 156 and 1440-ft lengths

and, as a result of our experiences so far, feel that the longer rail is preferable. Our joints are presently four-hole angle bars, using 1½-in bolts, and to date we have experienced no difficulties in the sections we have laid with this type of fastening. We have experimented both with buffer rails and welded rails end to end and, at the moment, we are of the opinion that the buffer rail could probably be eliminated because experience has indicated that we get more batter when utilizing buffer rails than when we put the long stretches of welded rail together without any intermediate shorts. These decisions, of course, are varied under local conditions.

Six-hole bars the best

By R. H. BEEDER
Assistant Chief Engineer, System
Atchison, Topeka & Santa Fe
Chicago

In the more than 650 miles of continuous-welded rail laid in our main tracks to date we have not used field welds as a means of joining the long lengths. We have joined these long lengths, which are normally 1440 ft long, by means of six-hole joint bars.

Our only experience with field welds has been with those butt welded with the oxy-acetylene method.

These field welds were made a number of years ago and were incorporated in a program looking toward decreasing the maintenance of joints in road and street crossings by joining two or more rails together. As a precautionary measure these field welds were covered by bolted joints at the time the welds were made.

Tests by our detector cars and other methods have shown a high incidence of defects in our field welds in crossings. This is not surprising as the methods are complicated and we feel their success depends a great deal on having welders of more than average mechanical ability. Some of the complications can be shown by the fact that two welders operating at the same time are required and two different sizes of rod are needed, as well as four different kinds of tips during various stages of the procedure. In addition the steps of veeing the rail ends, preheating, placing a back-up plate under the base of the rail to insure complete fusion, the clamping of two small pieces of steel under the rail head, the reheating of the weld and adjacent rail to cherry-red heat, and the covering of the completed weld with an insulating material, such as flake asbestos or rock wool for controlled cooling, offer many problems far beyond the ability of the average welder.

Another welding technique for field welds which offers some possibility is that of Thermit welding. In recent years this method has been improved. Tests this year in a rolling-load machine with a 60,000-lb wheel load on Thermit welds in 136-lb new rail gave good results with one specimen giving 1,253,300



Another important use for a CAT* Railroad Diesel

POWERING A SWING BRIDGE FOR THE L & N

Railroads are continually finding new, important uses for Caterpillar Railroad Diesels because of their records for high availability and economy both on track and off.

The Louisville & Nashville Railroad has installed a D326, equipped with torque converter, on a swing bridge, about 30 miles east of New Orleans.

Railroads know that wherever a Caterpillar Diesel is at work, they can depend on unfailing operation. For modern, heavy-duty Cat Engines are built for hard work. The D326, for instance, is a 200 HP (maximum output capacity) engine of compact, six-cylinder design. Like all Caterpillar Diesels, its four-cycle simplicity means there are no cylinder ports to clean. It has long-life features like highly effective fuel, oil and air filtration, "Hi-Electro" hardened cylinder liners and crankshaft and aluminum alloy bearings.

And just as important is the corps of Caterpillar Dealers that stand behind these engines. They stock all parts so you can avoid tying up capital in parts inventory. And they are ready to give you quick, efficient service around the clock with factory parts.

When you order new equipment or repower old equipment, specify high-production Caterpillar Railroad Diesels which range up to 650 HP (maximum output capacity). Your Caterpillar Dealer is prepared to give you specifications and data to help you plan your installations in the exact diesel power for your job. See him soon.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.



CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

**A QUARTER CENTURY
OF DIESEL LEADERSHIP**

What's the answer? (cont'd)

cycles before failure. We have not used this method in making any field welds as yet but further investigation may show justification for field tests if the price can be made competitive.

After considering all of the techniques and procedures now avail-

able for use in joining long strings of welded rail together, we feel that the most satisfactory method is by means of the strongest joint bar on the market. Under this policy we use a long toe, non-slotted, heavily constructed joint bar 36 in long, weighing 143.82 lb per pair in 136-lb section. The use of long toe bars necessitates some tie plates with special punching but there are only about 24 of these special plates per

mile and distribution is not overly expensive as they are scattered at the same time as the abrasion plates for the insulated joints.

In deciding on our present method for joining lengths of continuous welded rail we have not closed the book on the probability that further studies and developments will give more economical and satisfactory means of handling this detail in welded-track construction.

Hard-surfacing station platforms

When constructing or resurfacing passenger platforms that are subject to heavy traffic from baggage and mail trucks what finishing methods or materials will produce a surface with the necessary wear-resistant qualities? Explain.

Hard-finished concrete best

By J. E. GOOD
Assistant Chief Engineer
Reading
Philadelphia, Pa.

At the present time we are making repairs to the platforms in the Reading Terminal in Philadelphia. The tracks are in pairs with a platform between each pair of tracks. The platforms are 17 ft 9 in wide between curbs.

The previous paving consisted of bituminous concrete about 6 in thick carried on steel buckle plates. This, no doubt, was the original paving placed when the terminal was built in the 1890's. From time to time the paving was "top dressed" using various compounds, all of which were basically emulsified asphalt with sand and other ingredients.

The mail trucks used here have wheels with steel tires and are pulled by small, two-axle, battery-operated trucks.

As the paving is comparatively soft, particularly in the summertime, the passage of trucks caused the paving to creep and become very uneven. Due to the unevenness of the paving, very definite vibrations could be felt as the trucks moved around.

To remedy this condition it was decided to remove all paving material down to the buckle plates and replace any plates which were badly corroded. We then placed a paving of 3,000 psi concrete about 6 in thick with expansion joints every 25 ft. The expansion joint was made up by using two angles anchored to the slab and placing preformed

expansion joint filler between the angles.

Curb angles, parallel to the track, were welded to the stringers supporting the buckle plates.

The wearing surface of the concrete slab was finished using Dartmouth green Masterplate, as manufactured by Master Builders Company, and applied in accordance with manufacturer's specifications for Masterplating new floors by the monolithic (one course) method. Under the present program, 13,000 sq ft of platforms will be repaired and, if the work proves satisfactory, we plan to continue until all platforms in the terminal are completed, which means 47,000 sq ft of additional area.

The platforms completed to date appear to be satisfactory. Because of the smooth wearing surface, the vibrations due to moving trucks have been greatly reduced, in fact, practically eliminated.

In order to further reduce vibrations and also wearing of the slab we are considering replacing the steel-tired wheels of the trucks with rubber tires.

Grinding rail out-of-face

What are the advantages, if any, in grinding the running surface of rail out-of-face? Under what conditions should such grinding be done? How often? Explain.

Grinding all new rail

By J. C. BRENNAN
Superintendent
Delaware & Hudson
Oneonta, N. Y.

The major advantages of out-of-face grinding are: (1) Elimination of rail corrugations; (2) Elimination of minor engine burns and re-

duction in size and depth of more pronounced burns; (3) Reduction and/or elimination of primary and secondary joint batter; (4) Restoration of original rail head contour.

The conditions under which such grinding should be done are practically self-evident from the advantages I have outlined.

Back in 1955, it was decided to make a test of rail grinding equipment on the D&H. A program of some 200 miles of main line track, which included badly engine-burned rail, corrugated rail, and sections where joint batter was predominant, was set up. As a result of our experience in this test, we now regularly program rail grinding on a yearly basis. To date, rail grinding has been confined to main line track and is being programmed on about a four year cycle.

It may be of interest to readers to know of an experience we had with a



*Next time you order—specify
and insist on The Improved
GAUTIER Rail Anchor*



STRENGTH—The Improved Gautier is a heavy one piece rail anchor made of tough Alloy Spring Steel.

DURABILITY—The Improved Gautier is a rugged, sure-gripping anchor that has sufficient take-up so that it can be used again and again on new or used rail.

ECONOMY—The Improved Gautier can be applied with a maul or spike maul and can't be overdriven. It distributes the weight load evenly relieving stresses and strains, reducing maintenance of way and operating costs.

MID-WEST FORGING & MANUFACTURING COMPANY

General Offices, 38 S. Dearborn St., Chicago 3, Ill. ● Manufacturing Plant, Chicago Heights, Ill.

Distributors: D. V. MAHER, Cleveland, Ohio; MILTON W. ALLEN, Denver, Colorado; JOHN O'BRIEN, St. Paul, Minnesota; W. T. RICHARDS, San Francisco, California; G. C. HUNT & CO., Atlanta, Georgia

What's the answer? (cont'd)

stretch of track that was so badly engine burned it was scheduled for rail renewal in 1955. The rail grinding equipment arrived before the rail was changed out and when that particular location was reached we decided to grind it. Each pass of the grinding train removes approximately .0008 inches of metal. Three passes of the train were made and the rail surface was so improved that

it was not renewed and is now still in track, carrying about 20 million tons annually.

Another novel use of the grinding train was made on a heavy grade single-track main where we experienced considerable slipping down of motive power with resultant delays to trains, engine burns and excessive use of sand. It was noted that on this track the low rail was flowed to the field side and grease and oil from wheels was accumulating on the head of the rail. This rail was ground to

give a beveled effect to the field side of the head and the troublesome oil and grease accumulations were thereby practically eliminated.

This year we are also grinding all new rail being installed. All of this rail is being laid using the "frozen joint" technique and it is felt that the grinding will more closely simulate continuously welded rail by bringing rails to a uniform surface at the joints.

I am personally convinced that the life of rail can be extended where conditions outlined in my opening paragraph exist. In addition, the annual maintenance expense for repair of engine burns and building up rail ends is considerably reduced.

Cut Replacement Costs

with the Right Combination of Lincoln Hardsurfacing Electrodes

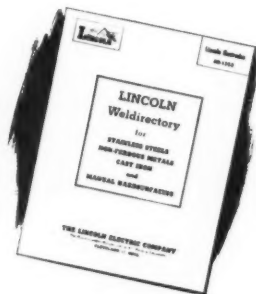
JET-HARD BU-90—for fast build-up at low cost. Easy, smooth operating Jet-Hard BU-90 deposits 35% to 40% more metal per minute than conventional electrodes. Resistance to impact and abrasion is considerably greater than mild steel electrodes.

ABRASOWELD—to resist severe impact and moderately severe abrasion. This electrode makes an extremely hard deposit. It is especially designed to resist battering and impact with a very minimum of wear.

FACEWELD-12—to resist severe abrasion. Faceweld-12 deposits microscopic chromium carbide crystals held in a hard matrix. It resists severe metallic or non-metallic abrasion even at high temperatures and in a corrosive atmosphere.

For dependability of results and ease of operation, try these Lincoln Hardsurfacing electrodes. Complete application data and procedures are contained in Weldirectory SB-1352. There's no charge. Just write us!

The Lincoln Electric Railway Sales Company
11 Public Square, Cleveland 13, Ohio
Railway Representatives of



THE LINCOLN ELECTRIC COMPANY

Cleveland 17, Ohio

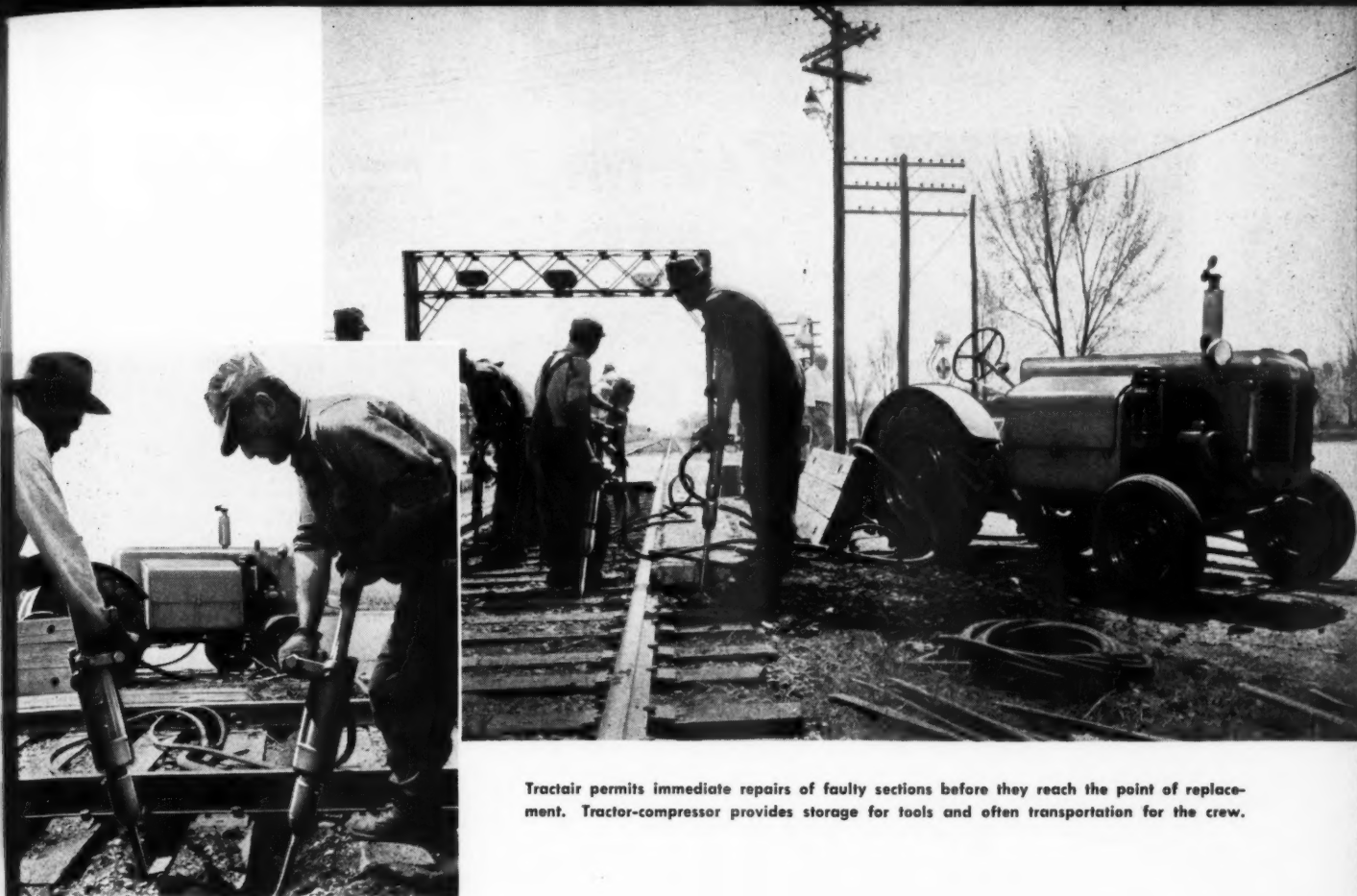
The World's Largest Manufacturer of Arc Welding Equipment

Lengthens life of rail

By JOHN S. PARSONS
Assistant Chief Engineer—
Maintenance of Way
Erie
Cleveland, Ohio

Rail grinding out of face, as presently developed, is very advantageous for a number of reasons. The life of the rail for main track use is greatly increased through the elimination of corrugation, mill surface imperfections, battered joints, moderate wheel burns, secondary batter, etc. This in turn reduces impact on the track structure, resulting in a smoother ride. Less joint-bar wear results. Necessity for bolt tightening is greatly reduced. Finally joint and track surfacing is brought to a minimum between cycled out-of-face tamping and resurfacing. In fact, such cycle periods are lengthened.

Grinding may be done on any rail with good ball and where the required grinding will not reduce the rail section too close to safe tolerance. This grinding should be done on rail with surface imperfections which affect the quality of the ride and which tend to increase the cost of maintenance. These include battered and dipped joints, secondary batter, engine burns, corrugations, and certain mill imperfections. Where joint batter is greater than .025 in the rail ends should first be built up. Further, before grinding it is advisable to have all joints surfaced and reformed bars applied where necessary. New rail should be ground after traffic has produced



Tractair permits immediate repairs of faulty sections before they reach the point of replacement. Tractor-compressor provides storage for tools and often transportation for the crew.

Tractair* Doubles Track-Upkeep Efficiency

Self-propelled tractor-compressor travels on road or tracks to jobs at crossings or at "inaccessible" bridges.

Multi-purpose unit provides maximum "on-the-job" power for air tools—eliminates delays and long hose lines.

A leading railroad credits the Le Roi Tractair 125 and C10T tie tampers with doubling tamping efficiency around frogs and switches in restricted "off-the-highway" areas.

The company's superintendent of maintenance explains that Tractair's mobility brings air supply to any point along the line... permits track repairs without interfering with yard or right-of-way traffic. This easy mo-

bility also eliminates costly handling of heavy stationary compressors—an expense that often discouraged minor repairs that would have extended the life of ties under heavy traffic.

Gets Close to Job

"With the Tractair, we can drive up to the repair or maintenance point on the highway, put the unit on the tracks by lowering the retractable guide wheels, and get right up to the point on the line where the job must be done," the superintendent reports. "We eliminate stringing compressor lines as much as 150 to 200 ft. to the job, and the consequent loss of 3 to 7 lbs. of air pressure for every 50 ft. of compressor line.

"The 3 in. blade of the C10T permits full-power tamping, even in those tight corners around switch points—places that are normally hard to reach, but where maintenance is needed most."

The tool's high-speed impact often permits tamping directly on the original bed, without jacking up the rails. The superintendent adds that a Tractair with four tampers does the work of a stationary unit using six 800-blows-per-minute tampers, and eliminates the need for a jacking crew at most points. What's more, the men themselves prefer the lightweight, shock-proof C10T because it's less fatiguing than conventional tampers.

Uses 30 Tractairs

The superintendent states that this Le Roi combination "is best for our requirements" in maintaining the many points that need frequent servicing—and hundreds of other related jobs. "At present, we have more than 30 Tractairs at work on the road, and envision further increases in the future." Tractair can do the same for you. Write us today for complete information and data.

*"Tractair" is the registered trademark for Le Roi's combination tractor-air compressor.



Division of Westinghouse Air Brake Co., Milwaukee 1, Wisconsin, manufacturers of Newmatic air tools, Tractair,* portable and stationary air compressors, and heavy-duty industrial engines. Write us for information on any of these products.





One of three cars operated by UNION PACIFIC with Hykil R-85 Sprayers. Operator shown controlling brush killer turret from cupola at top of car — U. P. R. PHOTO.

Effective WEED and BRUSH CONTROL with

•HYKIL• R-85 SPRAYER CAR

This unit embodies several exclusive features which are essential for efficient, versatile application of today's herbicides:

- Twin-engine, twin-pump design for continuous, trouble-free performance
- Automatic metering and mixing of chemicals from separate tank cars
- Exclusive "injector" system for applying specialized weed killers for "spot treatments".

The Hykil R-85 Sprayer is *completely built and tested* in our plant . . . then shipped to railroad knocked down, ready for installation in railroad's own car. The low initial cost of this equipment is generally **REPAID WITH-IN 2 YEARS**, through *improved weed-control results at reduced operating costs*.

WRITE FOR DESCRIPTIVE FOLDER

W. J. Cox Company

"Effective Weed Control in Any Form"

1021 FRUIT STREET
SANTA ANA, CALIFORNIA

6308 TROOST AVENUE
KANSAS CITY, MISSOURI



What's the answer? (cont'd)

sufficient cold rolling to insure maximum hardening to a depth of approximately 3/16 in.

How often depends upon the amount of traffic; grinding should be done as often as rail conditions require and should depend on the expected additional life of rail to be obtained. Additional life should be 6 years or more.

The life of rail which has become battered at the joints or which has become corrugated or has numerous engine burns which would necessitate removal, can be prolonged six or more years in most cases beyond its scheduled renewal under normal usage.

The smoothing out of corrugations and other surface imperfections reduces the vibration and the pumping action of track, which in turn, as stated before, reduces the frequency of out-of-face resurfacing of the track, thereby lengthening the cycle period. Elimination of pounding at joints caused by battered rail ends and secondary batter reduces joint maintenance both in surfacing of joints and tightening of bolts. In cases where joint batter is .025 in or less the grinding eliminates the batter altogether.

Roughness in the surface of rail and poor joint conditions cause undue pumping of track with consequent muddying up and fouling of ballast. Smoothing of imperfections saves cleaning of ballast as well as continued surfacing necessary in muddy track. Finally, although intangible, wear on rolling stock as well as ties is bound to be reduced.

Many benefits obtained

By H. F. REILLY
Assistant Chief Engineer
Lehigh Valley
Bethlehem, Pa.

Out-of-face grinding of the running surface of rail was considered by us primarily for the purpose of removing corrugations at locations where such conditions were particularly bothersome. However, after starting grinding operations with a modern grinding train, it soon became evident that many other benefits are obtained in the removal of



USEFUL, VERSATILE TOOLS FOR INDUSTRY...

P&H Wagon Crane and Truck Cranes



P&H Model 55-TC Truck Crane



P&H Model 105-TC Truck Crane

Throughout industry, especially in rail transportation and manufacturing, you'll find P&H machines at work—efficiently storing materials in yard areas—speedily handling a variety of maintenance jobs.

Whether you select the 10-ton P&H 105-TC, the 8-ton P&H Miti-Mite Truck Cranes or the one-man operation P&H 155-WC Wagon Crane, you'll lift, stack, load and dig more at a lower cost because of these profitable P&H performance features:

- Smooth, fast, lively swings
- Precise, responsive, direct hydraulic controls
- Rubber tire mobility and maneuverability
- Full rated capacities around the full 360°
- Full circle visibility with full-view cabs
- Greater strength, stamina and stability
- ONE-MAN OPERATION (with P&H Wagon Crane)

See your P&H dealer or write for complete information

HARNISCHFEGER

Construction & Mining Division
Milwaukee 46, Wisconsin

What's the answer? (cont'd)

from .008 to .012 in of metal from the running surface of the rail head in each grinding pass. Single-pass grinding will remove most corrugations and other slight imperfections, will improve previously welded rail ends and engine burns, and will correct the slight differences in height often found at the ends of new rails when laid in track, thereby preventing early end batter. Multiple-pass

grinding should be performed when batter, corrugation, flow of metal and other imperfections are greater than .008 to .012 in in depth.

Rail-head imperfections contribute greatly to many track-maintenance problems such as pumping track, loose ties, loose bolts and rail anchors, as well as undue wear and splitting of ties, and fouling of ballast. The removal of such imperfections will definitely lessen many of these maintenance problems, with a resultant improvement in riding

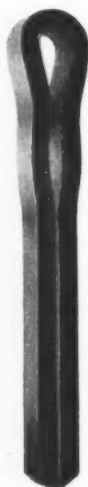
quality of track and a subsequent increase in main-line service life for rail.

Main-line rail, which is otherwise in good condition, should be ground on a cycle frequent enough to take care of rail end batter, corrugations and other surface imperfections so that it will no longer be necessary to consider such conditions in determining when rail becomes unfit for further use on high speed main tracks.

TIE PLATE LOCK SPIKES ... GAGE LOCK SPIKES

Hold Gage—Extend Tie Life

Reduce Maintenance



Tie Plate
Lock Spike



Gage Lock Spikes in Track



Gage Lock
Spike

TIE PLATE LOCK SPIKES hold tie plates firmly in place on cross-ties and bridge timbers. They are quickly and easily driven or removed with standard track tools. Driven to refusal, the spread shank is compressed by the walls of the hole. Plates are held against movement under spring pressure. Play between spike and hole is eliminated—gage is held and plate cutting is overcome.

The GAGE LOCK SPIKE is a rail spike, as well as a plate fastening, for use on tangent track and light curves where lateral thrust can be overcome with only two spikes at each plate rather than four cut spikes. It possesses the same features and advantages as the Tie Plate Lock Spike. The Gage spike is offset at the tie plate surface to avoid thrust and wear from the edge of the rail base. The use of Gage spikes saves up to 13,000 spikes per mile and potential damage to the tie from spiking and splitting is drastically reduced.

BERNUTH, LEMBCKE CO., INC.

420 Lexington Avenue, New York 17, N. Y.

Of great benefit

By G. A. PHILLIPS
Chief Engineer
Delaware, Lackawanna & Western
Hoboken, N. J.

It would seem almost unnecessary to outline the advantages of rail grinding which were so clearly described in your magazine issue of June, 1955.

I would say on the Lackawanna that we have been grinding our rail for quite a few years and under no consideration could we avoid the economical advantages of this. It is one of the economical tools that we use annually on this railroad with great benefit.

Has definite advantages

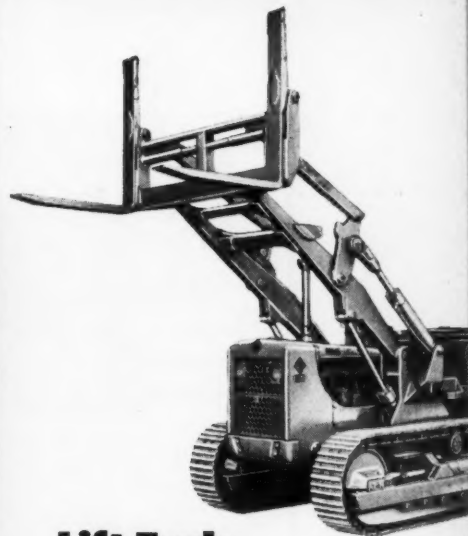
By HOMER F. GILZOW
Assistant Process Engineer
St. Louis - San Francisco
Springfield, Mo.

First, as preliminaries, the Speno rail-grinding train was operated 132 miles in July and August of this year on the Kansas City subdivision, which runs from Kansas City to Fort Scott, Kan. It was also used on the Afton subdivision for 8.5 miles in the vicinity of Baxter Springs. About 50 per cent of the mileage on the Kansas City subdivision is double track with a traffic density of 11 million gross ton-miles each way and the remainder is single track with a traffic density of 12 million gross ton-miles. The rail, basically, is 112 lb and was laid from 1934 through 1947, with a weighted average of 1944. The expected life of the rail on the Kansas City subdivision averages about twenty years.

In answer to the first question—"What are the advantages, if any, in grinding the running surface of

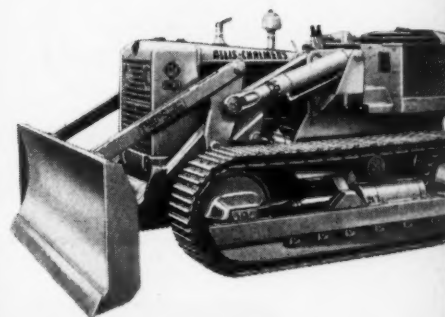
HD-6G Tractor Shovel

1½-cu yd bucket
72 net engine hp
Weight, 19,600 lb



Lift Fork

With adjustable or fixed tines



Tractor-Dozer

Straight type or angling type

ALLIS-CHALMERS TRACTOR SHOVEL WITH ATTACHMENTS...

A one-machine fleet for off-track work

The versatile Allis-Chalmers HD-6G tractor shovel with quick-change attachments provides a one-machine fleet for handling off-track construction, maintenance and material handling jobs. With standard 1½-cu yd bucket, the HD-6G excavates, loads, levels and stockpiles.

Equipped with quick-change attachments such as the lift fork, crane hook or dozer blade, the HD-6G lifts, stacks or loads solid and packaged materials, or handles a wide variety of dozing jobs. Attachments are quickly interchanged with the bucket by simply removing and replacing four pins.

Your Allis-Chalmers railroad representative will show you how versatile tractor shovels can reduce your equipment investment, save you time, and reduce costs. Get all the facts on the 1½-yd HD-6G or the three larger models ranging in capacity to 4 cu yd . . . see your Allis-Chalmers dealer, today.

Crane Hook

Lifts up to 6,700 lb



ALLIS-CHALMERS

Engineering in Action

Quick starts
down to
65°
BELOW
ZERO
for Diesel
and gasoline
engines



SPRAY STARTING FLUID, with the propellant used in the pressurized can, insures quick starts for Diesel and gasoline engines in temperatures as low as 65° F. below zero and withstands 180° F. heat.

This combustible propellant was developed after two years of research.

SPRAY STARTING FLUID pressurized with our inert propellant is absolutely safe and odorless in storage.

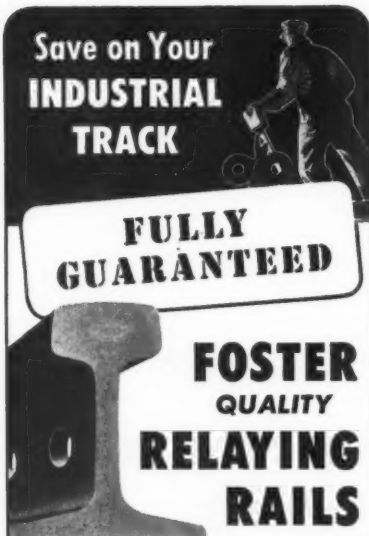
SPRAY STARTING FLUID is sold through distributors, wholesalers and their dealers located throughout the United States and Canada.

SPRAY PRODUCTS CORPORATION

P. O. BOX 584 • CAMDEN 1, NEW JERSEY

Save on Your
**INDUSTRIAL
TRACK**

**FULLY
GUARANTEED**



**FOSTER
QUALITY
RELAYING
RAILS**

Lower installation and maintenance costs—handle more cars better. Foster nationwide warehouses also stock every New Rail Section 12# through 175#, Switch Material and Accessories to meet your specific job requirements.

SEND FOR CATALOGS RT-10

RAILS • TRACK EQUIPMENT • PIPE • PILING

LIB FOSTER co.

PITTSBURGH 30 • NEW YORK 7 • CHICAGO 4
ATLANTA 8 • HOUSTON 2 • LOS ANGELES 5

What's the answer? (cont'd)

rail out-of-face?"—we would begin by saying that it does have some definite advantages. In grinding the running surface of the rail, you remove the corrugations and flowed metal from the rail, reduce engine burns and practically eliminate rail-end batter. Since corrugations are a minor problem on our railroad, the greatest benefit we received was the reduction in the size of the engine burns and elimination of practically all joint batter.

The joint batter ranged up to .05 in, with an average of 0.014 in. By taking field measurements prior to running the grinding train it was determined that by making an average of two passes over the entire subdivision, that 80 per cent of the joint batter would be completely eliminated and the other 20 per cent greatly helped. A field check, after the train was run, found the results to be as anticipated.

Engine burns, in general, were too deep to grind out, but by making an average of two passes, the area of the burn was reduced to the extent that a smooth riding condition is now being experienced.

By removing, through out-of-face grinding, the various wear failures enumerated above, it is believed that the rail is upgraded some 5 to 7 years. This will vary somewhat, depending on the weight of rail, amount of traffic, general track condition, etc.

Smoothing up the rail will reduce wheel impact and it seems logical that less spotting and out-of-face surfacing would be required. It also should reduce rail defects such as head and web separations, etc.

In reply to the other question—"Under what conditions should such

grinding be done and how often?"—the grinding should not be done until a field check is made to determine the extent of the rail defects of the various types mentioned above.

The hardened surface on the rail caused by rolling wheels only extends to a depth of about .06 in, and since it does not appear advisable to take off more than half of this surface, grinding should not be done unless three passes (total of approximately .03 in) would eliminate at least 75 per cent of the joint batter and all of the corrugations, and reduce the engine-burn area so that the wheels will roll smoothly.

It is our opinion that, where a comparatively small number of severe engine burns, chipped rail ends, and excessive battered joints exists, these could be corrected ahead of out-of-face grinding with a welding gang and make the grinding more profitable.

Where rail failures are being experienced in sufficient number, either from service failures or from test failures, grinding would not be advisable.

We believe that rail grinding programs should be set up so that when joint batter or corrugations reach from .01 in to .012 in, the rail can be ground. By doing it at such a time, one pass will eliminate the defects and will prove more economical than waiting until two or three passes are required, since the deeper the batter and corrugations are permitted to become, the faster they grow. Of course, if the rail is beyond the one-pass stage and two or three passes will eliminate the defects, it should be done.

It is estimated that new rail, or rail that has been ground, would not require grinding again for approximately five years or more, depending on the traffic density.

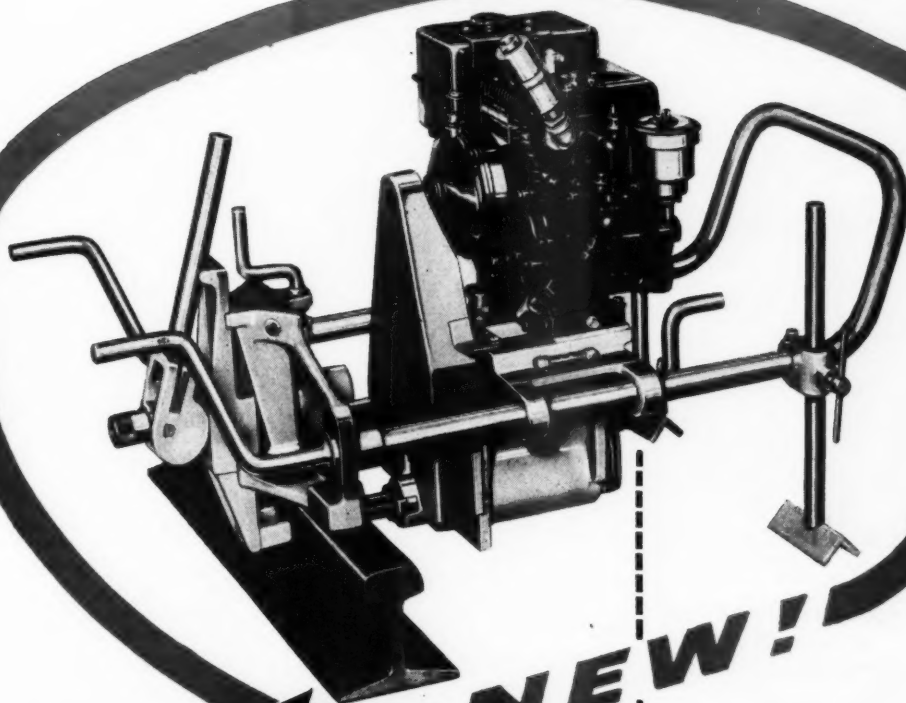
CLASSIFIED ADVERTISING

INDUSTRIAL SALES

Nationally known chemical company needs two men in sales to railroad industry. Primary products are industrial herbicides. Chemical background not essential. Should be under 35. Location Chicago, travel mid-western area. Reply to Box 109, Railway Track & Structures, 79 West Monroe Street, Chicago 3, Illinois.

OFFICE MANAGER

Nationally known chemical company serving railroad industry has opening for office manager to supervise district headquarters office and handle raw materials and warehousing for three small mid-western plants. Location Chicago. Should be under 40. Address Box 910, Railway Track & Structures, 79 West Monroe Street, Chicago 3, Illinois.



NEW!

RACINE® portable rail drill WITH AUTOMATIC POWER FEED

Here is RACINE'S new Portable RAIL DRILL — completely new simplified design. A precision machine built for rugged in-track service. Once this machine is set up for specific rail size, it will drill hole after hole without further adjustment. Through an exclusive RACINE compensating pressure arrangement, feed of drill varies automatically, depending on sharpness of bit and hardness of rail.

★ **READILY PORTABLE**

Simple quick-acting cam actuated clamp holds machine in position and allows rapid removal of machine from track.

★ **EASY TO HANDLE**

Carrier guard protects mechanism and provides a convenient carrying handle for lifting machine. Weighs only 165 pounds.

★ **EASY TO OPERATE**

Clamping device automatically aligns machine. Drill is always properly positioned and securely held in place. Machine is leveled by two quick-acting ground contacts and spirit level.

★ **POWERFUL, FAST**

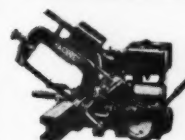
Powered by easy-starting 2¾ H.P. four-cycle gasoline engine. Drives

drill chuck at a 30 to 1 reduction providing more than adequate power.

★ **PRECISE, EFFICIENT**

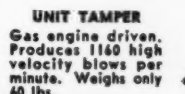
Holes can be drilled cleanly and accurately through any rail web in less than two minutes. Quick acting drill holder provides easy drill changing. Drill holder is designed to utilize full length of drill shank.

OTHER RACINE PORTABLE RAIL TOOLS



RAIL SAW

Portable rail cropping machine—gas engine driven. Saves time—reduces rail failures.



UNIT TAMPER

Gas engine driven. Produces 1150 high velocity blows per minute. Weighs only 60 lbs.



**HYDRA QUAD
MULTIPLE TAMPER**

Four tampers operated by one man. Hydraulically powered by 15 H.P. gas engine. Easy removal from track.



Write today for complete descriptive literature and prices on any of the above Racine Portable Rail Machines.

RACINE HYDRAULICS & MACHINERY, INC.

2030 Albert Street

CHICAGO, ILL.



ELECTRIC PLANT NEWS



On-site cement plant operates with Onan power

35KW Onan Electric Plant powers 15 H.P., 5 H.P. and two 2 H.P. motors, vibrator, controls, welder and lights

It's a completely electrified operation . . . even to electric lights in the mobile office nearby . . . yet this bulk cement plant is far distant from the utility highline. The Onan heavy-duty, water-cooled electric plant runs continuously during working hours with a minimum of servicing. It has the capacity to provide electricity for miscellaneous lights, tools, motors and communications, too.

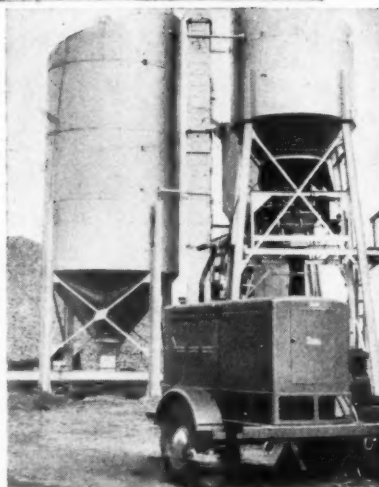
Other A.C. models: 500 to 75,000 watts. Also D.C. and battery charging units.

See your Onan distributor or write for literature

D. W. ONAN & SONS, INC.

3921 University Ave. S.E., Minneapolis 14, Minnesota

ELECTRIC PLANTS • AIR-COOLED ENGINES • KAB KOOLER • GENERATORS



Series 35ED Onan Plant, powered by 8-cylinder gasoline engine, provides all the electricity needed. Trailer mounted, it is easily moved from site to site. Weatherproof housing.

Now GRAVELY Gives You Push Button Snow Removal!



New Gravelly Self Starter . . . Choice of 3 Snow Removal Tools!

A new experience in snow removal—simply push the button and your Gravelly Tractor is ready for the toughest snow removal job! . . . The only 5-HP Tractor offering a choice of Snowblower, Snowplow or Power Brush for snow removal—choose the tool

to fit your particular job. New Steering Sulky also available. Too, this one tractor offers 30 attachments to choose from for year 'round grounds maintenance tasks. From 75" gang mowers to 48" Snowplow, the Gravelly saves time and money all year!

GRAVELY TRACTORS, INC., Box 42, Dunbar, W. Va.

Biographical briefs (cont'd.)

(Continued from page 26)

served as superintendent of passenger transportation, Eastern region, and superintendent of the Williamsport and Panhandle divisions until 1940 when he was named engineer maintenance of way of the Southwestern general division. Shortly thereafter he was transferred to Chicago as chief engineer, maintenance of way, Western region, and in June 1952 was promoted to chief engineer. Since November 1, 1955, Mr. Grove had been serving as area engineer—construction.

Kenneth C. Morriss, 33, who was recently named assistant division engineer on the Chesapeake & Ohio at Ashland, Ky. (*RT&S*, Aug., p. 12), joined the C&O in June 1942 as a rodman at Quinwood, W.Va. After serving with the Air Force, he returned to the railroad and was named masonry inspector at Peru, Ind., in 1946. He subsequently served as instrumentman and draftsman at Peru, and in November 1948 was named assistant cost engineer at Clifton Forge, Va. In May 1956, he was appointed assistant engineer at Detroit, Mich.—the position he held at the time of his recent promotion.

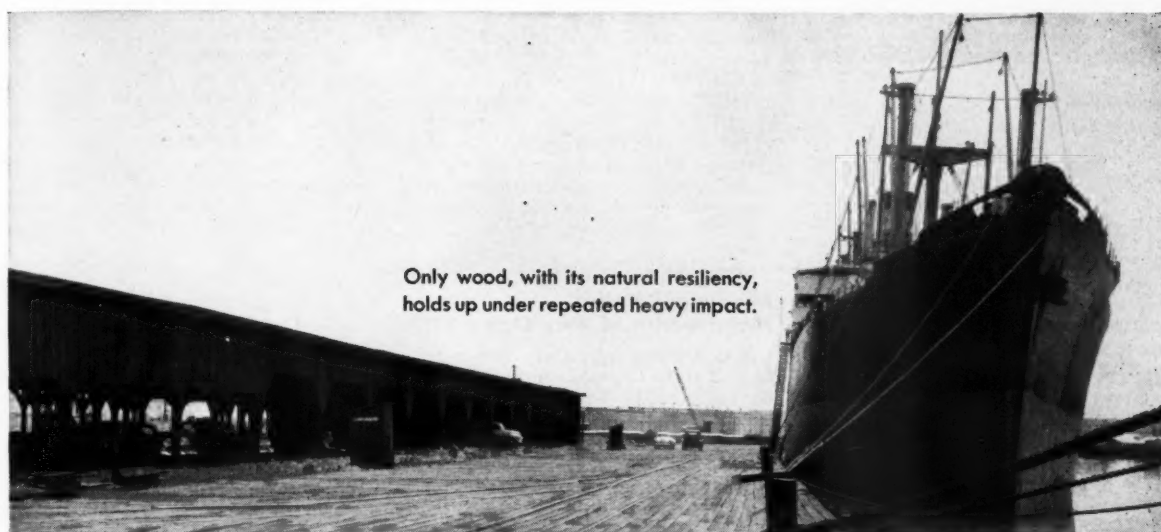
Glenn L. Staley, 66, who recently retired as bridge engineer of the Missouri-Kansas-Texas at Dallas, Tex. (*RT&S*, Aug., p. 12), joined the M-K-T in 1913 at Waco, Tex. He served briefly with the U. S. Government, the Long-Bell Lumber Company, the CB&Q, the Kansas City Terminal, the Kansas City Southern, the Midland Valley, and the T&P as rodman, draftsman, instrumentman, etc., until October 1919 when he returned to the M-K-T as assistant engineer. After serving as assistant bridge engineer he was named bridge engineer in 1932.

Murray D. Robb, 33, who was recently promoted to division engineer on the Canadian National at Edson, Alta. (*RT&S*, Aug., p. 12), graduated from the University of Saskatchewan and joined the CNR in 1942 as a chairman. After serving with the Royal Canadian Navy he returned to the CNR in May 1948 as an instrumentman, serving on the Prince Albert and Dauphin divisions. From May 1951 until October 1953 he served as assistant engineer and resident engineer on construction, later serving as assistant division engineer on the Port Arthur and Edmonton divisions.

John A. White, Jr., 30, who was recently named construction engineer on the Norfolk Southern at Norfolk, Va. (*RT&S*, July, p. 30), graduated from the Virginia Military Institute and joined the Norfolk Southern in April 1953 as an engineering accountant. He served as supervisor of bridges and buildings and assistant engineer prior to his recent promotion.

J. E. Crowley, 54, who was recently named superintendent of the Lehigh Valley at Buffalo, N. Y. (*RT&S*, Sept., p. 26), joined the road in 1918. He served in various engineering capacities in New York and Pennsylvania until 1944, when he was named assistant division engineer at Wilkes-Barre, Pa.—the position he held at the time of his recent promotion.

On the Kansas City Southern:



Penta protects this lumber shed



against rot and termite attack

Rot and termites strike quickly in the warm, moisture-laden atmosphere of Port Arthur, Texas. Ordinarily, they'd make fast work of the Kansas City Southern Railway lumber shed located there.

But the Penta-treated wood used in much of the shed's flooring and many of its supporting members means it will stay strong, solid and resilient for many years to come, despite any number of termites or rot organisms nearby. Penta-treated wood is selected for such installations because of its immediate availability, low initial installation cost, and reduced cost of annual upkeep.

Saves Money! Penta-treated wood

will save you money wherever decay or insects threaten, just as it has the Kansas City Southern. Its service life is 4 to 5 times *longer* than untreated wood. You spend less for replacements, less for maintenance.

Stays in wood. Penta is an oil-borne (not water-soluble) preservative. It doesn't leach out to leave wood vulnerable to attack.

Faster, easier handling. No squawks from workmen about difficult or dirty handling. Because Penta-treated wood is clean, it speeds work, raises morale.

Adding all these things up... doesn't Penta sound like it's best for you? For a

list of treating plants near you, write to...

Organic Chemicals Division
MONSANTO CHEMICAL
COMPANY

Dept. PI-20A, St. Louis 1, Missouri



Where Creative Chemistry Works Wonders For You

Association News

American Railway Engineering Association

Following the intense committee activity in September when 17 of the association's committees held meetings, only three of these have scheduled meetings to be held in October, as follows: Iron & Steel Structures, Dean's conference room, Northwestern University, Evanston, Ill., October 23-24; Cooperative Relations with Universities, Purdue University, Lafayette, Ind., October 17-18; and Waterproofing, Baltimore, Md., October 24-25.

Northwest Maintenance of Way Club

The program of the October meeting, to be held on the 24th, will depart somewhat from usual practice. "Mechanized Accounting — Railway Maintenance Forces," will be the subject to be discussed. The program will be in charge of the accounting department of the Great Northern.

The evening's activities will get underway at 5:00 pm when all interested persons will meet on the 13th floor of

the Great Northern's office building at 175 E. Fourth Street, St. Paul, Minn. The group will then be conducted to the fifth floor where personnel will be on hand to demonstrate the machines and to answer questions.

Afterward, the group will proceed to the regular meeting place, the Midway Civic Club, 1931 University Avenue, for dinner at 6:30. Following dinner, moving pictures will be shown covering the accounting of payrolls, material, inventories and other uses of accounting machines in connection with maintenance-of-way matters.

Mississippi Valley Maintenance of Way Club

The first meeting of the season will be held at the Coronado Hotel, St. Louis, on October 14. The principal speaker will be E. L. Anderson, assistant to vice-president, operations, Frisco, whose subject will be: "Design and Construction of the Frisco's Tennessee Yard."

Mr. Anderson will be assisted by other Frisco engineers who were actively involved in the work, and the talk will be illustrated by color slides.

National Railway Appliances Association

Brochures and application-for-space forms for the 1958 exhibition of the

NRAA were mailed to prospective exhibitors early in October. The exhibition will be held at the Coliseum in Chicago, March 10-13, 1958, during the annual convention of the American Railway Engineering Association.

This will be the first exhibition of maintenance-of-way material since September, 1956, and a large display of new and improved appliances and labor-saving work equipment is planned. Interested manufacturers should address the Director of Exhibits, National Railway Appliances Association, 59 East Van Buren Street, Chicago 5, Ill.

Supply Trade News

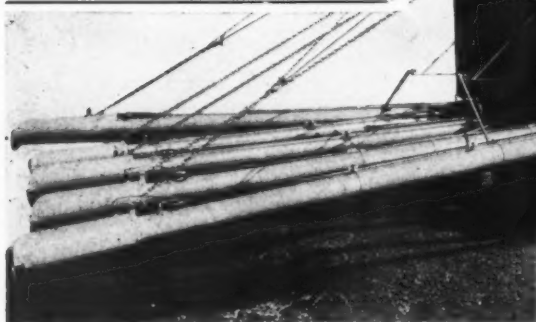
ALLIS-CHALMERS MANUFACTURING COMPANY—Ground was broken recently for a new \$3,250,000 engineering and research laboratory at the firm's Harvey, Ill., works. The new facility will provide a central engineering building, an engine and material handling product development laboratory and an engine test wing accommodating 32 engine dynamometers.

(Continued on page 79)

DESTROYS VEGETATION ON ROAD BEDS, EMBANKMENTS AND DITCHES — QUICKLY CLEARS SNOW FROM YARDS AND SWITCHES

Wollery put its first weed burner in service on a major road in 1925. Today's advanced design, the model C.O.E., embodies every refinement made in more than 30 years of continuous improvement.

All Wollery design changes are for increased efficiency with no loss of simplicity . . . no sacrifice of the famous Wollery easy maintenance features.



WOOLERY MACHINE CO.

Established 1917 • 29th & Como Ave., S.E.
MINNEAPOLIS, MINN.

THE FAMOUS WOOLERY HEAVY-DUTY WEED-BURNER is an excellent SNOW-MELTER

- TORQUE CONVERTER drive on propelling engine.
 - ALL STEEL CAB. Doors fasten half-open to deflect heat and scoop in air.
 - ELECTRIC IGNITION to all five firesist alloy steel burner heads. Burners can be used individually or all five together. Outer burners can be manipulated from cab while machine is in operation.
 - TWO BRAKING SYSTEMS. Power for service, manual for parking or emergency.
 - CHOICE OF ENGINE MAKES . . . Also available in 3-burner, 2-burner or 1-burner models.
- Literature and specifications on request.
Also manufacturers of Wollery Tie Cutters, Tie End Removers, Bolt Tighteners, Spike Drivers, Track Tool Transporters, Motor Cars and Joint Oilers.

**YOU TOO CAN SAVE
MONEY WITH ...**

Lewis

sealtite

RAILROAD FASTENERS

**"ZINC BOLTS
CUT COSTS"**

We are hearing it more and more, "Zinc bolts save money." More railroads are using Sealtite Double-Life, Hot-Dipped, Sealed in Zinc, galvanized bolts. They add years of life, cut costs by retarding rust and corrosion. Ask about them.

**SEALTITE
TIMBER BOLT**

More than 85 per cent of the nation's No. 1 railroads use Lewis Sealtite products—because the extra features save them money.

Each Sealtite bolt and nut is precision designed to do its particular job better. Every Sealtite product is hot forged from uniform special quality steel.

All Sealtite products are made in the USA to meet or exceed ASTM specifications.



**A FEW OF THE MANY
RAILROADS USING
SEALTITE PRODUCTS**



OTHER FEATURES THAT SAVE YOU MONEY

FLUSH WITH SURFACE

Sealtite pulls up to a "level with surface" fit without counter sinking.

PERFECT FIT

Shank diameter thread to head is exact. No air pockets, no corrosion.

NO SPLINTERS

Sealtite scientific design compresses without raising surface splinters.

PATENTED FINS

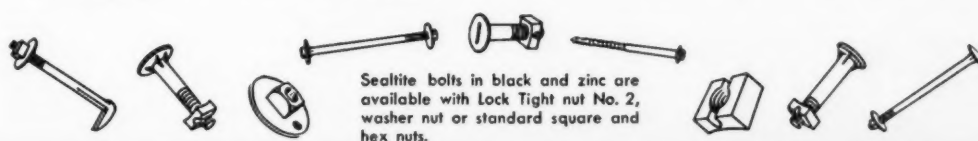
For full bearing strength without tearing or splitting wood.

MOISTURE TIGHT

Sealtite tapered, beveled edge forms perfect water tight seal.

ACCURATE THREADING

A spinning fit on each bolt offers easy, fast installation.



Sealtite bolts in black and zinc are available with Lock Tight nut No. 2, washer nut or standard square and hex nuts.

Lewis

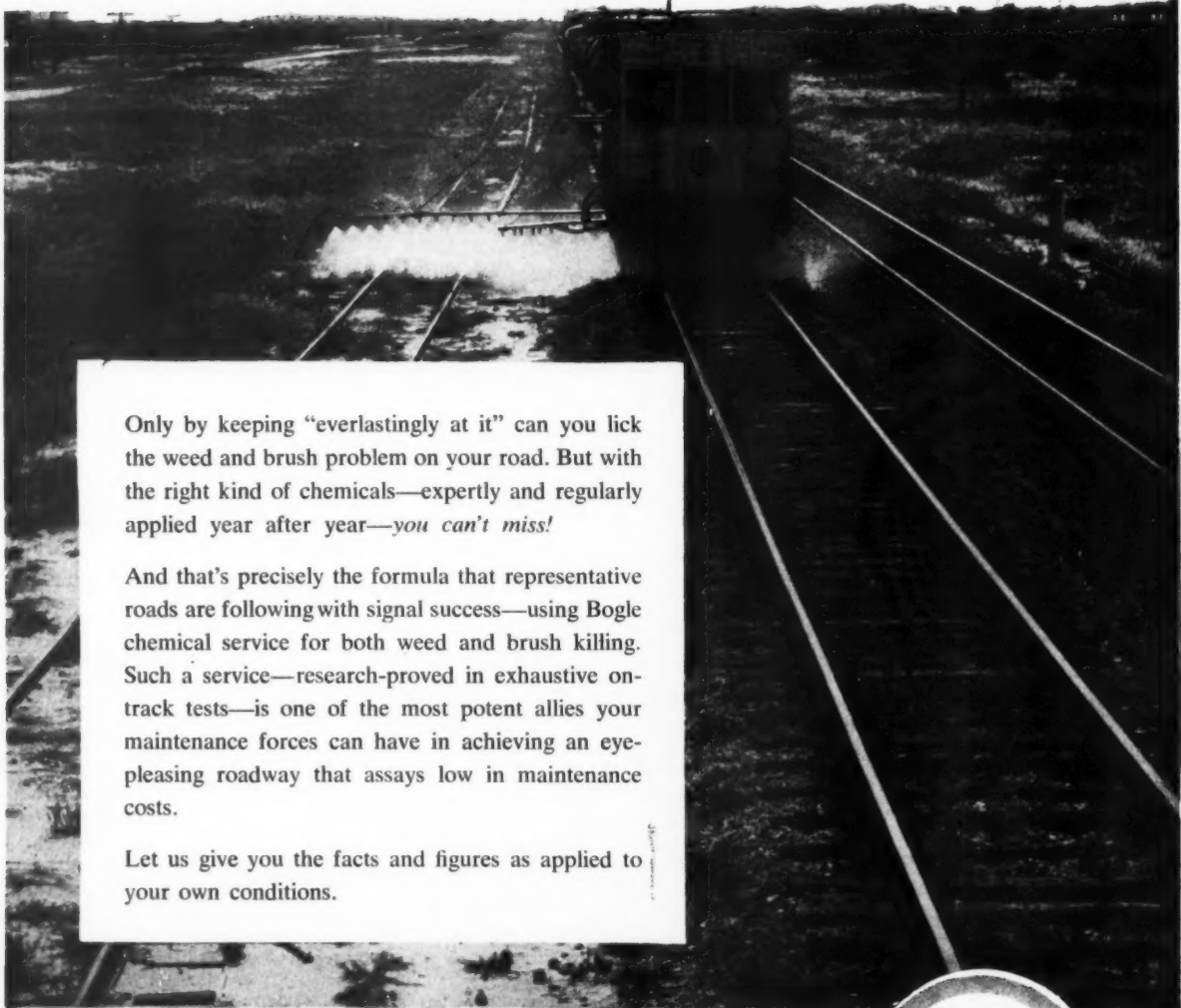
BOLT & NUT COMPANY

504 Malcolm Avenue S. E. • Minneapolis 14, Minnesota



IT PAYS OFF IN LOWERED MAINTENANCE COSTS

Every Time



Only by keeping "everlastingly at it" can you lick the weed and brush problem on your road. But with the right kind of chemicals—expertly and regularly applied year after year—you *can't miss!*

And that's precisely the formula that representative roads are following with signal success—using Bogle chemical service for both weed and brush killing. Such a service—research-proved in exhaustive on-track tests—is one of the most potent allies your maintenance forces can have in achieving an eye-pleasing roadway that assays low in maintenance costs.

Let us give you the facts and figures as applied to your own conditions.

The R. H. BOGLE Company

ALEXANDRIA, VA.

Memphis, Tenn.



COMPLETE WEED AND BRUSH CONTROL SERVICE

Supply Trade news (cont'd)

AUSTIN-WESTERN—A. Merrill Smith, who has been associated with the sales staff of the firm—Construction Equipment division of the Baldwin-Lima-Hamilton Corporation—has been named domestic field sales manager with headquarters at Aurora, Ill.

L. B. FOSTER COMPANY—Ralph E. Hickey and James R. Foster, have been appointed sales engineers at Houston, Tex. E. G. Giles has been named assistant manager of the order and traffic department at Houston.

KOEHRING COMPANY—John E. Chadwick, sales manager at Milwaukee, Wis., has been named vice-president and sales manager in charge of sales, service and sales promotion, succeeding John S. Conway, deceased. Edward Aho, Harvey C. Perry and Anthony J. LaPorte, have been appointed district sales representatives.

MANNIX INTERNATIONAL, INC.—James W. Christoff has been promoted to vice-president with headquarters as before at Minneapolis. F. E. Rogers, formerly assistant superintendent on the Burlington at LaCrosse, Wis., has been named eastern representative with headquarters at Pittsburgh, Pa., and R. O. Ellefson has been appointed general superintendent, also with headquarters at Pittsburgh.

MATISA EQUIPMENT CORPORATION—Robert P. Underwood, formerly midwest district sales manager of the Railroad division of the International Telephone & Telegraph Corporation, has been appointed assistant sales manager.

MAXI CORPORATION—Howard D. Griffin has been appointed sales manager for the company's complete line of products. Offices of the company are at Los Angeles.

MOORE & STEELE—E. D. Cowlin, Canton, Ohio, has been appointed a sales executive by this company to work with the development, production and marketing of railroad appliances. The appointment became effective September 2. Mr. Cowlin has retired as general manager of the Reliance Division, Eaton Manufacturing Company, Massillon, Ohio, after 33 years of service with that company.

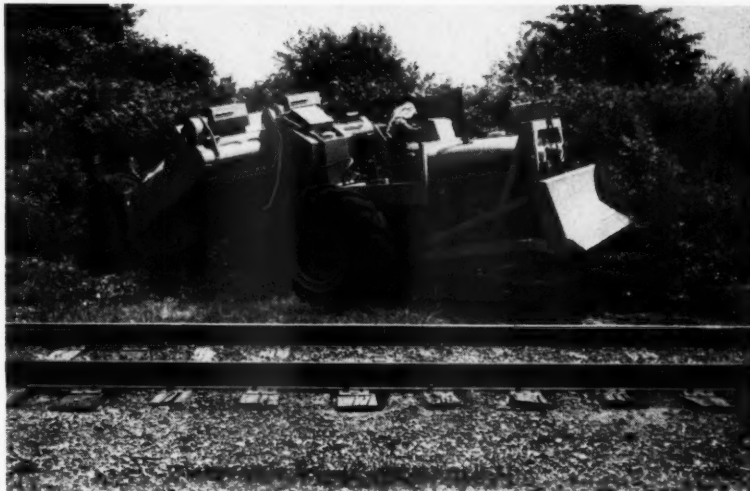
Mr. Cowlin joined the Reliance Manufacturing Company in New York in 1924, and served as New York branch manager until January 1, 1930. At that time he was transferred to the company's home office



J. E. Chadwick
Koehring Company

J. W. Christoff
Mannix

No wait for track clearance with "handyman" D Tournapull



When a call comes for emergency maintenance along your right-of-way, there's no wait for track clearance if you have a D Tournapull. This one-man maintenance machine starts immediately, travels along track embankment,

cross-country, via highway, or takes short-cuts on access roads at speeds to 29.5 mph to reach the job site.

While your "D" runs to the emergency assignment, revenue traffic on your mainline proceeds without interruption. You will not have to shuffle schedules, notify special work crews, organize a work train, or impose side-track delays along the line. D Tournapull, with only one operator, may be all the help you'll need.

Useful on all maintenance

Handyman "D" can handle dozens of maintenance jobs along your right-of-way. This 9-yd. scraper cuts ditches, spreads ballast, builds sidings, widens roadbed, raises grade, does a wide variety of work... quickly, and at low cost. Equipped with bulldozer blade, machine does many light dozing jobs, slopes banks, stockpiles coal, backfills around culverts and crossings. If snow blocks crossings and roads, "D" can plow it with optional snow plow. In

▲ Maneuverable D Tournapull climbs embankment, gives quick clearance for passenger train. Handy rig moves out from right-of-way in seconds; on most maintenance jobs machine can continue working while train passes.

congested areas, snow can be loaded in scraper bowl and hauled away.

Replaces many machines, many men

Study your present maintenance-of-way equipment fleet: the loaders, haulers, and other tools needed, the trailers or flat cars required to carry these machines to the job. Count the number of men you employ for this work, the time lost shifting them from their regular jobs to special assignments. Figure the time it takes to get this equipment fleet organized, and the time traveling to and completing the job, plus the time required moving to the next work location.

Compare this loss of time and money with the cost of one D Tournapull and one operator. You'll find that one or more "D's" can greatly reduce your equipment cost, do more maintenance work, keep your work crews occupied where they can be of greatest value.

Why not get complete details on "Handyman" D Tournapull? Send for verified reports of "D" railroad performance on major rail lines.

Tournapull—Trademark Reg. U.S. Pat. Off. DP-1157-RR-z



LeTourneau-WESTINGHOUSE Company

Railroad Sales Division
Peoria, Illinois

A Subsidiary of Westinghouse Air Brake Company



WORLD'S MOST DEPENDABLE...SIMPLEX TRACK JACKS

GET IN THE GROOVE!

Featuring non-slip double grooved toes
for lining without digging!



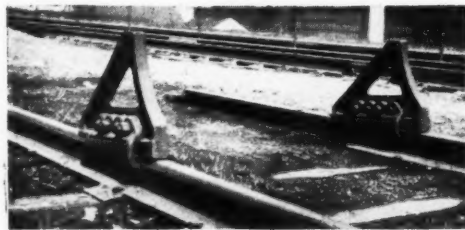
- Lifting ranges from 5 inches to 19 1/4 inches
- Thumb guards and trips on both sides
- Lowest toe height—less digging or pounding to set jack

- Most complete line—twelve models
- Available with malleable or aluminum alloy housings
- Large area (2 1/2" x 3 1/4") lifting toe has non-slip grooves

WORLD'S LARGEST
MECHANICAL AND
HYDRAULIC JACKS
SIMPLEX
JACKS
JENNY
COLT
UTILA-TOOL

TEMPLETON, KENLY & CO. • 2543 GARDNER RD. • BROADVIEW, ILLINOIS

SAVE TRACK SPACE With Q and C Car Stops



Q and C Car Stops are economical because they require very little track space and a minimum of labor for application. They wedge firmly to the rails. No drilling is necessary. One size is suitable for all sections of rail used in yards and side tracks.



Specify them on
your requisitions.

THE Q AND C CO.

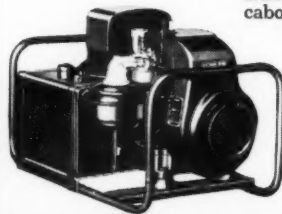
59 E. Van Buren St. Chicago 5 90 West St. New York 6 611 Olive St. St. Louis 1
Our 71st year in the development of worthwhile track appliances.

KOHLER ELECTRIC PLANTS



Portable power... top performance for maintenance of way

Kohler electric plants have earned a world-wide reputation for reliable power anywhere, any time. Use compact, portable models on the job for maintenance of way, wrecking trains, erection of signal towers, trestles—construction of all kinds. Other sizes for end-to-end and train-to-train communications, caboose lighting and refrigeration, work trains, tunnels, electro magnets. Gasoline, propane and diesel models; sizes 500 watts to 50 KW include models for charging 6, 12, 32 and 112 volt batteries. Write for folder 19-H.



Model 2.5M25, 2500 watts, 115 volt AC. Manual starting.

Kohler Co., Kohler, Wisconsin. Established 1873

KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT
ELECTRIC PLANTS • AIR-COOLED ENGINES • PRECISION CONTROLS

Supply Trade news (cont'd)

and plant at Massillon as general sales manager. Following the merger of Reliance with Eaton Manufacturing Company in 1931. He continued as general sales manager until March 1945 when he was promoted to general manager of Eaton's Reliance division. He continued to serve in this capacity until his retirement.

SIMMONS-BOARDMAN PUBLISHING CORPORATION—George Dusenbury joined the firm on September 2 as vice-president and editorial and promotion director. Mr. Dusenbury has been a magazine consultant for the past 10 years, specializing in the business field, but serving several general magazines here and abroad. He has held annual editorial clinics for the Associated Business Publications and seminars at Columbia University and the University of Tennessee. Prior to that Mr. Dusenbury taught "Technique of the Picture Story" at New York University. He was also director of Visual Research for *Look* Magazine of New York. Before going with *Look*, Mr. Dusenbury was with Compton Advertising, Inc., of New York.

He was graduated from the University of Michigan in 1931 where he edited "Michiganensian," the university yearbook, and the Michigan campus magazine.

One of his first jobs encompassing both editing and advertising was with the Plymouth division of the Chrysler Corporation in Detroit where he served as advertising production manager, copywriter and editor of the dealer house organ. He later left to go with Ross Roy, Inc., Detroit, as a writer and account manager. Other experience includes a stay with J. Stirling Getchell, Inc., of New York, as a copywriter and the Allis-Chalmers Manufacturing Company of Milwaukee as assistant advertising manager.

Two new district sales offices have been opened one in Philadelphia and one in Pittsburgh, to provide intensified service to the railway supply industry. The Philadelphia office will be in charge of W. E. Gladby, newly-appointed district manager, at Jericho Manor, Jenkintown, telephone: TUrner 7-4526. The Pittsburgh office will be in charge of C. J. Fisher, newly-appointed district manager at that city, at 530 Sixth Avenue, telephone: GRant 1-8186. These and other district sales offices for Railway Age, *Railway Track & Structures*, and their affiliated monthly publications are listed on page 35.



E. D. Cowlin
Moore & Steele



George Dusenbury
Simmons-Boardman

For RR construction...maintenance



Drives on- or off-highway—One man and a modern Adams grader travels via right-of-way or highway to construction site or to scattered maintenance jobs...without waiting for rail transport...without need for special crew. An Adams grader saves time, cuts your payroll and machinery costs.

Speeds construction—The Adams goes to work quickly, helps construct new yards, prepares roadbeds for track, builds access roads. It grades surface smooth, levels fill, slopes banks, cuts ditches, spreads crushed stone, cinders, and gravel. Your Adams grader also scarifies, pushes scrapers, bulldozes, and handles many other dirtmoving jobs at low cost.

Saves on maintenance — This modern grader maintains yards, roads, and right-of-way...makes repairs before major problems develop. An Adams grader cleans drainage ditches, widens shoulders, maintains banks and fills, smooths access roads, removes brush and weeds, and cleans up around stockpiles, bulk-cargo, docks, and yards.

Exclusive: 15 speeds — Only Adams heavy-duty graders have 8 speeds forward (to 26 mph) plus three optional creeper gears, and 4

reverse speeds (to 13 mph). No other make of grader provides the speed choices for work at fastest practical rate, with fast back-up for shuttle grading.

Exclusive: Double-action brakes — Only about half the usual pedal pressure is needed for quick, sure stops. Service brakes on both transmission and wheels act simultaneously to slow, stop, or hold grader.

Optional equipment — Scarifier rips out asphalt, hard-packed dirt, roots and rocks. Dozer blade pushes debris off right-of-way, backfills around culverts, cleans up spillage in yards. Snow plow and wing clear snow from yards, depot, freight areas and access roads.

Call or write for details on fast, versatile Adams graders.

A size ADAMS for every need

New POWER-Flow 660 —

- 190 hp with torque converter...30,200 lbs.
- Model 660* — 150 hp diesel...30,050 lbs.
- Model 550* — 123 hp diesel...26,370 lbs.
- Model 440* — 104 hp diesel...24,080 lbs.
- Model 330* — 80 hp diesel...23,020 lbs.
- Model 220 — 60 hp G.M. diesel...15,500 lbs.

*Choice of Cummins or General Motors engines.
(Weights shown are usual working weights)

Adams—Trademark AG-1156-RR-2



LeTourneau-WESTINGHOUSE Company

Railroad Sales Division
Peoria, Illinois

A Subsidiary of Westinghouse Air Brake Company



For the Smoothest
Paved Areas Over
Railroad Tracks ...

Use **KASLE**
IMPROVED
"Guardmaster"
FLANGEWAY CROSSING GUARD

Smooth Durable Crossings—Low installation
and Maintenance Cost.

Write today for Brochure.

TRACKWORK of ALL KINDS

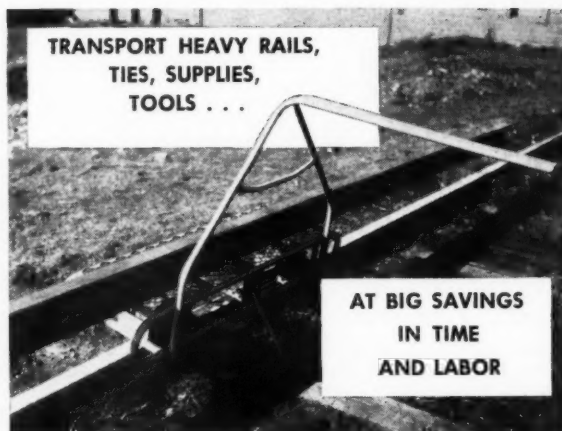
Rails of all sizes, Splice Bars, Bolts, Spikes, Tie
Plates, Frog and Switch Materials, Tools, etc.
Railroad Track Material inquiries invited.

**KASLE
STEEL CORP.**

P.O. Box 536

Detroit 32, Michigan

TELEPHONE - 6-4200



with the **NOLAN** TRACK DOLLY!

Well-balanced . . . strong and serviceable . . . 1500 lbs. capacity
. . . easy-rolling roller bearings . . . the NOLAN Track Dolly can keep
things moving fast, easily, and economically.

Built of tubular high-carbon steel, operator's handle conveniently
placed for full control. Inspector's model has a detachable handle to
permit carrying the entire unit in a truck or car.

STANDARD DOLLY — Price \$85.50

Length 50 1/2" — Width 15 1/2" — Ht. above rail

6 3/4" — Wt. 88 lb.

INSPECTOR'S DOLLY — Price \$84.50

Length 36" — Width 14" — Ht. above rail 6" —

Wt. 60 lb.

Send your order now!

Write for complete catalog of Nolan railroad
equipment and supplies



THE NOLAN COMPANY

166 Pennsylvania Street, BOWERSTON, OHIO

ADVERTISERS IN THIS ISSUE

| | | | | | |
|---|--------|--|--------|---|----|
| A | | I | | O | |
| Allis-Chalmers Mfg. Co. | 71 | Ingersoll-Rand Co. | 31 | Onan & Sons, Inc., D. W. | 74 |
| American Brake Shoe Company, Railroad Products Division | 21 | J | | Orton Crane & Shovel Co. | 57 |
| American Creosoting Corporation ... | 59 | Jackson Vibrators, Incorporated | 34 | P | |
| Armco Drainage & Metal Products, Inc. | 8 | K | | Portland Cement Association | 6 |
| B | | Kasle Steel Corporation | 82 | P. & M. Company Inside Back Cover | |
| Bernuth, Lembecke Company, Inc. ... | 70 | Kennedy Company Incorporated, H. T. | 9 | Q | |
| Bethlehem Steel Company | 3 | Kershaw Manufacturing Co., Inc. Inside Front Cover | 80 | Q & C Company, The | 80 |
| Bird & Son, Inc. | 12 | L | | R | |
| Bogle Company, R. H. | 78 | Le Roi Company | 67 | Racine Hydraulics & Machinery, Incorporated | 73 |
| C | | LeTourneau-Westinghouse Company | 79, 81 | Rails Company, The Back Cover | |
| Caterpillar Tractor Co. | 63 | Lewis Bolt & Nut Company | 77 | Railway Track-work Company | 29 |
| Chicago Pneumatic Tool Co. | 7 | Lincoln Electric Company | 66 | Reade Manufacturing Company, Incorporated Front Cover | |
| Chipman Chemical Company | 30 | Linde Company, Division of Union Carbide & Chemicals Co. | 10 | S | |
| Columbia-Geneva Steel Division, U. S. Steel Corp. | 51 | M | | Speno, Frank, Railroad Ballast Cleaning Co., Inc. | 18 |
| Cox Company, W. T. | 68 | Mall Tool Division, Remington Arms, Inc. | 19 | Spray Products Corporation | 72 |
| Cullen-Friestedt Company | 14 | Mannix International Inc. | 32 | T | |
| D | | Matisa Equipment Corp. | 22 | Templeton, Kenly & Company | 80 |
| Dearborn Chemical Company | 11 | Mid-West Forging & Manufacturing Company | 65 | Tennessee Coal & Iron Division, U. S. Steel Corp. | 51 |
| DuPont, E. I., de Nemours & Co., Inc., Grasselli Chemicals Department .. | 15 | Monsanto Chemical Company | 75 | True Temper, Railway Appliance Division | 36 |
| E | | Morrison Railway Supply Corp. | 60 | U | |
| Esso Standard Oil Company | 33 | Moss Tie Company, T. J. | 17 | United States Borax & Chemical Cor- poration, Pacific Coast Borax Com- pany Division | 27 |
| F | | Motorola Communications & Electronics, Inc. | 28 | United States Steel Corporation | 51 |
| Fairbanks, Morse & Company | 4 | N | | United States Steel Export Company. | 51 |
| Fairmont Railway Motors, Inc. | 24, 25 | National Aluminate Corporation | 5 | W | |
| Foster Company, L. B. | 72 | National Lock Washer Company | 61 | Woodings Forge & Tool Company .. | 53 |
| G | | Nolan Company | 82 | Western Railroad Supply Company .. | 13 |
| Gravely Tractors, Inc. | 74 | Nordberg Manufacturing Company | 54, 55 | Woolery Machine Company | 76 |
| H | | | | | |
| Harnischfeger Corporation, Construc- tion and Mining Division | 69 | | | | |
| Homelite Corporation | 16 | | | | |

"This index is an editorial feature, maintained for the convenience of readers. It is not a part of the
advertiser's contract and Railway Track & Structures assumes no responsibility for its correctness."

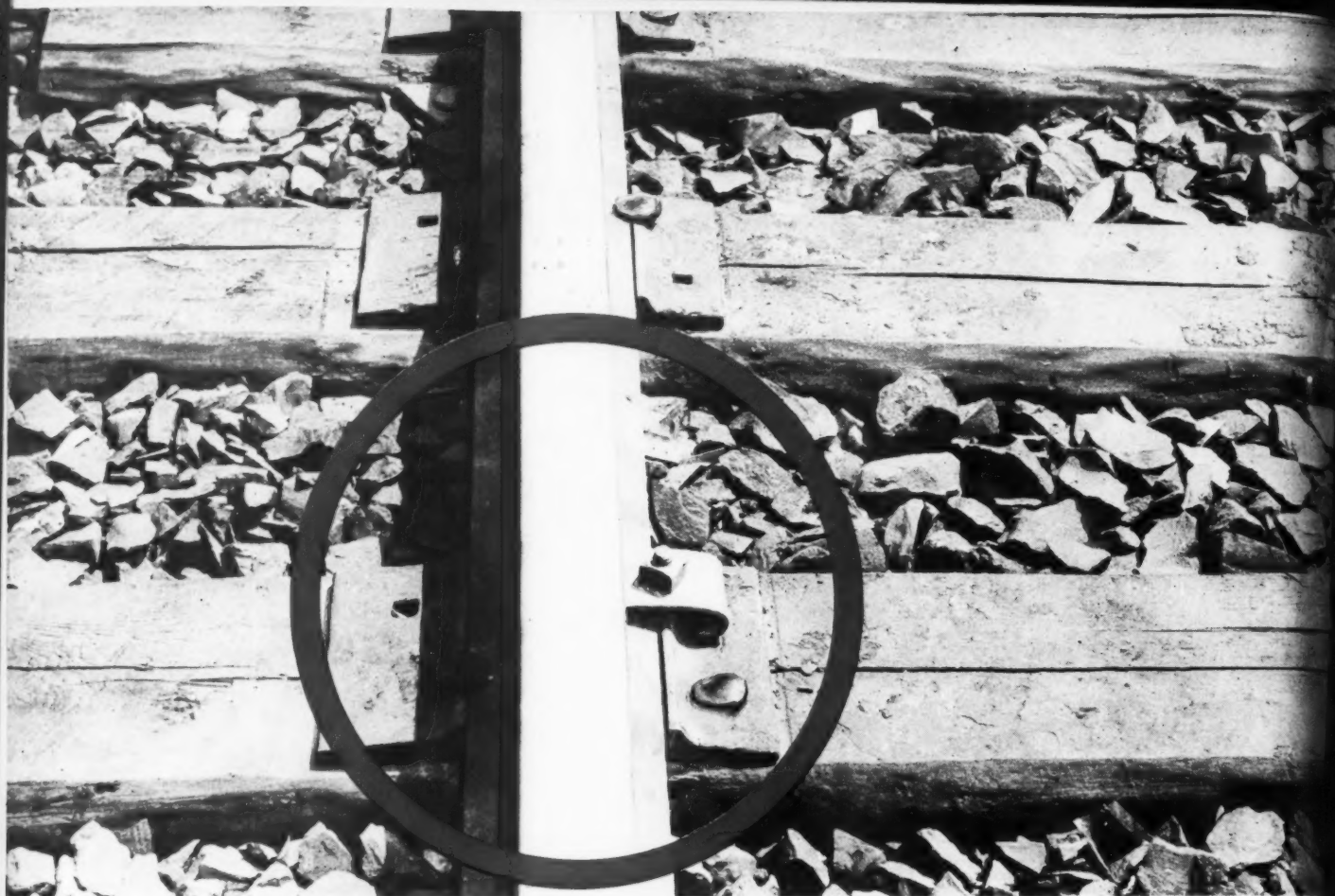
THE ANCHOR OF TODAY
ON EVERY
RAILWAY!



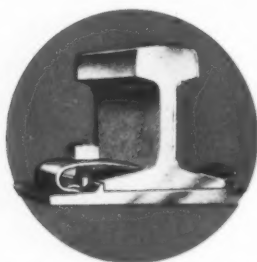
For ease in application
For effective and efficient service
For sturdy construction and long life
and for the many years of dependable
service The Improved Fair has proven
that it is the anchor of today, on
every railway.

THE P. & M. CO.

CHICAGO • NEW YORK • DENVER • ST. LOUIS • BOSTON • ST. PAUL • WASHINGTON • SAN FRANCISCO • MEXICO CITY



Compression Rail Anchors STOP RAIL MOVEMENT In BOTH DIRECTIONS



WRITE or PHONE

HOW? By putting a solid two-way squeeze on your rails, holding them firmly to outside shoulder of the tie plate. Result? Creepage is halted. Proper expansion of gaps maintained and, highly important . . . you hold line and gage. Key advantages! * Better riding track * Greater savings with less wear and tear on ties.

Two-way Compression Rail Anchors fit all rail sections; are recommended for welded and tight rail. Find out the way to substantial savings in your maintenance. Our brochure gives the complete story. Get your copy today!



at MAPLEWOOD, N. J. 187 Maplewood Ave., TEL: South Orange 3-4320
ST. LOUIS, MO. 2089 Railway Exchange Bldg., TEL: CHestnut 1-2960
CHICAGO, ILL. 59 East Van Buren St., TEL: WAbash 2-1460

o
NS